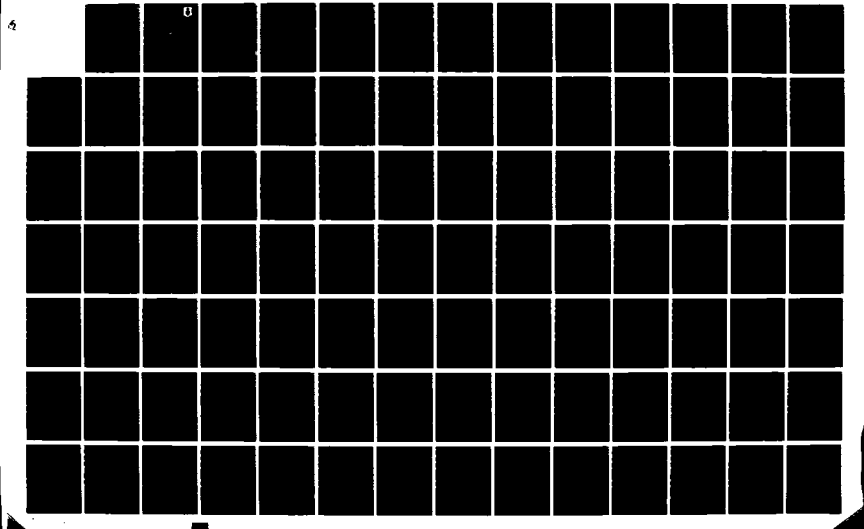
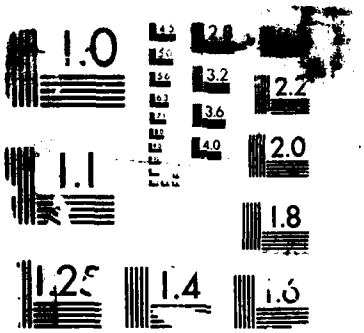
AD-A189 146 AUTOMATED INTERACTIVE SIMULATION MODEL (AISIM) VAX VERSION 50 ACCEPTANCE..(U) HUGHES AIRCRAFT CO FULLERTON CA GROUND SYSTEMS GROUP V ALLERTON ET AL. 29 APR 87 1/4

UNCLASSIFIED 1854474-2 ESD-TR-87-226 F19628-86-C-0070 F/G 12/5 NL





COPY RESOLUTION TEST CHART

AD-A189 146

ESD-TR-87-226 CDRL 109

DTIC FILE COPY

Automated Interactive Simulation Model (AISIM) VAX Version 5.0 Acceptance Test Procedures

VICKY ALLERTON
GLORIA BOICE
SUSAN SWEET

Hughes Aircraft Company
Ground Systems Group
P.O. Box 3310
Fullerton, CA 92634

DTIC ELECTE DEC 0 4 1987 S D

29 April 1987

APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED

Prepared For

ELECTRONIC SYSTEMS DIVISION
AIR FORCE SYSTEMS COMMAND
DEPUTY FOR DEVELOPMENT PLANS AND SUPPORT SYSTEMS
HANSCOM AIR FORCE BASE, MASSACHUSETTS 01731

87 11 30 105

LEGAL NOTICE

When U. S. Government drawings, specifications or other data are used for any purpose other than a definitely related government procurement operation, the government thereby incurs no responsibility nor any obligation whatsoever; and the fact that the government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or conveying any rights or permission to manufacture, use, or sell any patented invention that may in any way be related thereto.

OTHER NOTICES

Do not return this copy. Retain or destroy.

This technical report has been reviewed and is approved for publication.

Michael F Merriman, Lt. USAF
Project Officer, Requirements Analysis

Charles J. Ryan, Major, USAF
Program Manager, Computer Resource Management Technology Program (PE 64740F)

FOR THE COMMANDER

Robert J. Kent
Director, Systems and Software
[illegible] Center

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE

REPORT DOCUMENTATION PAGE

1a. REPORT SECURITY CLASSIFICATION Unclassified	1b. RESTRICTIVE MARKINGS
2a. SECURITY CLASSIFICATION AUTHORITY	3. DISTRIBUTION / AVAILABILITY OF REPORT Approved for Public Release; Distribution Unlimited.
2b. DECLASSIFICATION / DOWNGRADING SCHEDULE	
4. PERFORMING ORGANIZATION REPORT NUMBER(S) CDRL 109 1854474-2	5. MONITORING ORGANIZATION REPORT NUMBER(S) ESD-TR-87-226
6a. NAME OF PERFORMING ORGANIZATION Hughes Aircraft Company Ground Systems Group 6b. OFFICE SYMBOL (If applicable)	7a. NAME OF MONITORING ORGANIZATION HQ, Electronic Systems Division (XRSE)
6c. ADDRESS (City, State, and ZIP Code) P.O. Box 3310 Fullerton, CA 92634	7b. ADDRESS (City, State, and ZIP Code) Hanscom AFB Massachusetts, 01731-5000
8a. NAME OF FUNDING / SPONSORING ORGANIZATION Electronic Systems Division 8b. OFFICE SYMBOL (If applicable) XRSE	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER F19628-86-C-0070
8c. ADDRESS (City, State, and ZIP Code) Hanscom AFB Massachusetts, 01731-5000	10. SOURCE OF FUNDING NUMBERS PROGRAM ELEMENT NO. / PROJECT NO. / TASK NO. / WORK UNIT ACCESSION NO.
11. TITLE (Include Security Classification) Automated Interactive Simulation Model (AISIM) Vax Version 5.0 Acceptance Test Procedures	
12. PERSONAL AUTHOR(S) Vicky Allerton, Gloria Boice, Susan Sweet	
13a. TYPE OF REPORT Final 13b. TIME COVERED FROM 5/18/86 TO 5/15/87	14. DATE OF REPORT (Year, Month, Day) 1987 April 29 15. PAGE COUNT 400
16. SUPPLEMENTARY NOTATION	

17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)
FIELD	GROUP	SUB-GROUP	AISIM Acceptance Test Test Procedures

19. ABSTRACT (Continue on reverse if necessary and identify by block number)

This acceptance test procedures manual is used to perform acceptance testing of AISIM versions 4.2 and 5.0. This manual contains test procedures covering all functions of the AISIM system and a description of the expected results for each test.

20. DISTRIBUTION / AVAILABILITY OF ABSTRACT ☐ UNCLASSIFIED/UNLIMITED ☒ SAME AS RPT ☐ DTIC USERS	21. ABSTRACT SECURITY CLASSIFICATION Unclassified
22a. NAME OF RESPONSIBLE INDIVIDUAL Michael Merriman, 1Lt, USAF	22b. TELEPHONE (Include Area Code) (617) 377-2716 22c. OFFICE SYMBOL XRSE

DD FORM 1473, 84 MAR 83 APR edition may be used until exhausted
All other editions are obsolete

SECURITY CLASSIFICATION OF THIS PAGE
Unclassified

TABLE OF CONTENTS

Section 1 - INTRODUCTION

1.1 Purpose..... 1-1

1.2 Scope..... 1-1

1.3 Applicable Documents..... 1-1

Section 2 - TEST DESCRIPTIONS AND PROCEDURES

2.1 Test Descriptions..... 2-1

2.1.1 AISIM Executive Test Description..... 2-1
2.1.2 Design User Interface Test Description..... 2-1
2.1.3 Analysis User Interface Test Description..... 2-3
2.1.4 Replot User Interface Test Description..... 2-5
2.1.5 Hardcopy User Interface Test Description..... 2-5
2.1.6 Library User Interface Test Description..... 2-6
2.1.7 File Management User Interface Test Description..... 2-6
2.1.8 Help Editor Interface Test Description..... 2-7

2.2 Test Equipment..... 2-7

2.3 Test Conditions..... 2-7

2.4 Test Procedures..... 2-7

2.4.1 AISIM Executive Test Procedure..... 2-9
2.4.2 Design User Interface Test Procedure..... 2-13
2.4.3 Analysis User Interface Test Procedure..... 2-26
2.4.4 Replot User Interface Test Procedure..... 2-35
2.4.5 Hardcopy User Interface Test Procedure..... 2-37
2.4.6 Library User Interface Test Procedure..... 2-38
2.4.7 File Management User Interface Test Procedure..... 2-43
2.4.8 Help Editor Interface Test Procedure..... 2-49

2.5 Sample Completed Test Procedure..... 2-51

2.6 Certification Statement..... 2-51

TABLE OF CONTENTS (cont'd.)

Appendix A	Model Description and Results Verification for TESTDB1.DBF - Run 1.....	A-1
	Results Verification for TESTDB1.DBF - Run 2.....	A-59
Appendix B	Model Descriptions for Simulator Acceptance Tests TESTDBA.DBF through TESTDBF.DBF.....	B-1
	Test 1 Model - File Verification TESTDBA.DBF Listing.....	B-3
	Test 1 Model - File Verification TESTDBB.DBF Listing.....	B-21
	Test 1 Model - File Verification TESTDBC.DBF Listing.....	B-31
	Test 1 Model - File Verification TESTDBD.DBF Listing.....	B-39
	Test 1 Model - File Verification TESTDBE.DBF Listing.....	B-57
	TEST 1 Model - File Verification TESTDBF.DBF Listing.....	B-73
Appendix C	Results Verification for TESTDBA.DBF through TESTDBF.DBF.....	C-1
	Results Verification for TESTDBA.DBF.....	C-3
	Results Verification for TESTDBB.DBF.....	C-29
	Results Verification for TESTDBC.DBF.....	C-43
	Results Verification for TESTDBD.DBF.....	C-55
	Results Verification for TESTDBE.DBF.....	C-91
	Results Verification for TESTDBF.DBF.....	C-111
Appendix D	Model Description for TESTCONV3.DBF Before Conversion.....	D-1
	Model Description for TESTCONV4.DBF Before Conversion.....	D-11
	Model Description for TESTCONV3.DBF and TESTCONV4.DBF After Conversion.....	D-21
Appendix E	Model Description and Results Verification for TESTDB2.DBF.....	E-1

LIST OF FIGURES

Figure		Page
2-1	AISIM Overview.....	2-2
2-2	Simulator Testing - Functional Requirements Cross-Reference...	2-4
2-3	Sample Test With Results.....	2-52

DTIC COPY INSPECTED

Accesion For
NTIS CRA&I
DTIC TAB
Unannounced
Justification
By
Distribution /
Availability Codes
Dist | Avail and/or Special
A-1

Section 1

INTRODUCTION

1.1 Purpose

The purpose of this manual is to describe the procedures for conducting acceptance testing of the Automated Interactive Simulation Model (AISIM) versions 4.2 and 5.0 on a VAX 11/780. Provided with each test procedure is a description of the expected results of each test and room to record observed results.

1.2 Scope

This document contains test procedures for exercising all functions of the AISIM system. These procedures demonstrate conformance of AISIM to requirements specified in the AISIM Computer Program Product Specification.

1.3 Applicable Documents

The documents which will provide further information on the AISIM system are listed below.

a. Hughes Aircraft Company, Automated Interactive Simulation Model (AISIM) User's Manual, F19628-86-C-0070, Fullerton, California, May 1987.

b. Hughes Aircraft Company, Automated Interactive Simulation Model (AISIM) Computer Program Product Specification, F19628-86-C-0070, Fullerton, California, May 1987.

Section 2

TEST DESCRIPTIONS AND PROCEDURES

2.1 Test Descriptions

Acceptance testing of AISIM consists of verifying that all the components of the system function properly. Figure 2-1 shows all these components and their relationships to one another. The tests in this manual are composed of procedures to exercise the user interfaces of the AISIM functions and to exercise the simulation capabilities of AISIM. The following paragraphs describe each of these test procedures.

2.1.1 AISIM Executive Test Description

The AISIM executive controls a user's execution of the AISIM system. The executive controls a user's entry into each of the AISIM functions and provides the user with the ability to view simulation reports, generate listings of models, backup and restore data bases, and submit analysis runs in batch mode. Tests for invoking the various AISIM functions are not included in this section because these tests are included in the tests of the individual functions. Test procedure 2.4.1 is designed to show that the following capabilities are available:

- invoke AISIM
- list the parameters in effect for the current AISIM session (project, terminal type, etc.).
- backup a data base
- restore a data base
- change the parameters in effect for the current AISIM session
- delete temporary AISIM files
- edit simulation report files, trace reports and Library function buffers
- create a listing of a model
- display help information about AISIM commands and concepts

2.1.2 Design User Interface Test Description

The Design User Interface is used to create AISIM models. This includes the model entity definition which is performed under the Design User Interface, as well as the subordinate functions of the Process Editor Interface which is used to construct Processes, and the Architecture Design Editor which is used to specify a system architecture and its message routing characteristics. Test Procedure 2.4.2 is designed to show that the following capabilities are available:

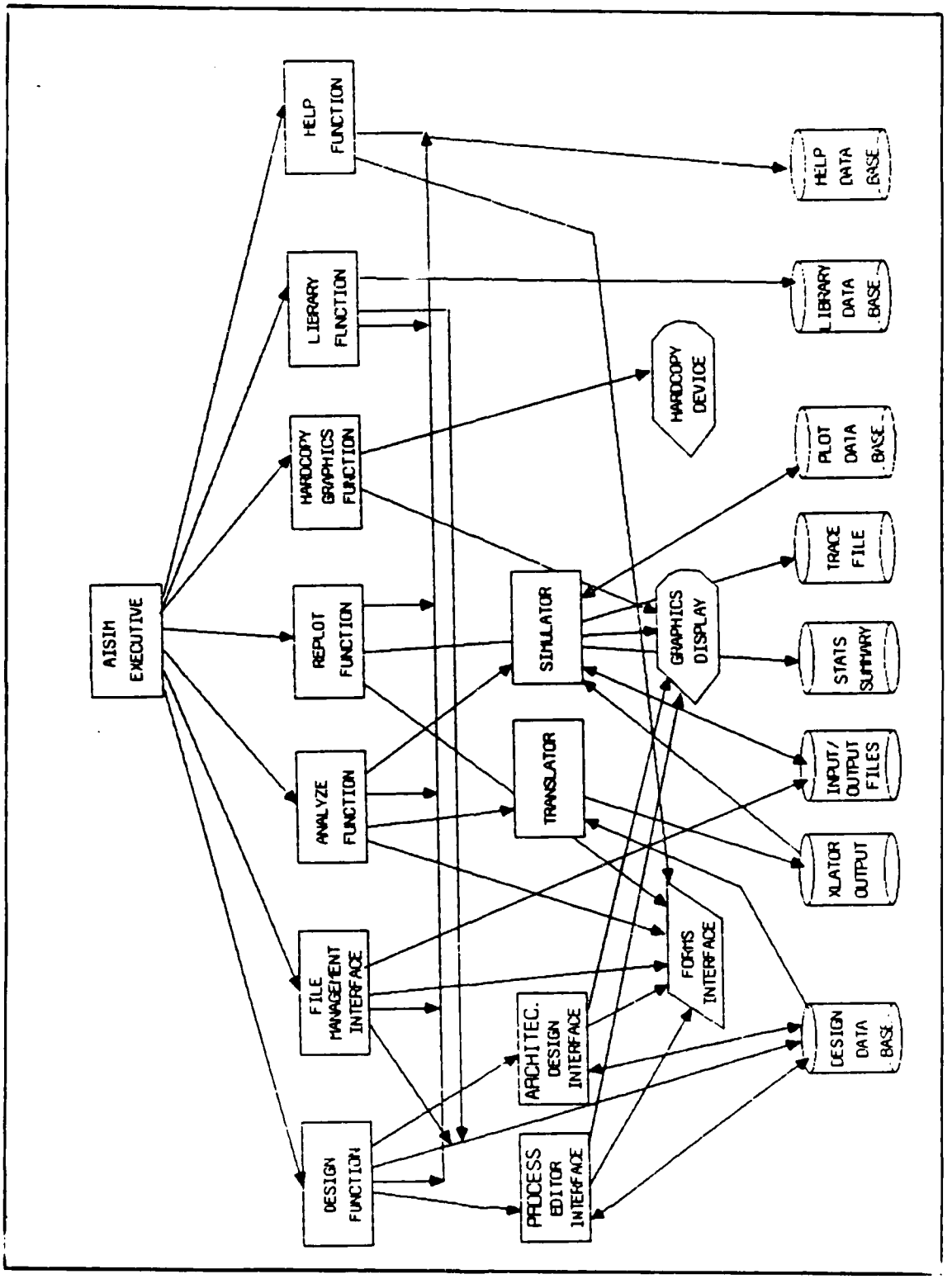


Figure 2-1. AISIM Overview

- Create entities
- Copy entities
- Modify entities
- List entities
- Delete entities
- Save model data bases
- Add Process Primitives
- Specify default time units to be placed in AISIM forms
- Change Process Primitives
- Delete Process Primitives
- Display various portions of Processes
- Create an architecture: place symbols and connections
- Attach attributes to Architecture Resources by defining attributes of symbols
- Move symbols and connections within an architecture
- Window in an architecture work space
- Create an LPT both manually and automatically
- Display help information about the Design User Interface commands

2.1.3 Analysis User Interface Test Description

The Analysis User Interface is used to run simulations of AISIM models. Test procedure 2.4.3 is intended to show that the following interface and simulation capabilities are available:

- Translate models
- List entities
- Display entity statistics
- Modify entity values
- Establish breakpoints
- Cancel breakpoints
- Define multiple plots with one command

- List current plot definitions
- Define single plots
- Display plots
- Save plot sets (definitions or data)
- List saved plot sets
- Retrieve saved plot definition sets
- Delete selected plot definitions
- Modify time units for display of simulation outputs
- Set infinite resources for specific Resource entities
- Add descriptive text to output report
- Verify display of small numbers in exponential notation in output report
- Run simulations

The AISIM simulator provides the capability to analyze models created through the Design Function. Test procedure 2.4.3 utilizes several preconstructed models to exercise various capabilities of the simulator. Figure 2-2 shows a cross reference of the test models and functional requirements of the simulator tested by each model.

	A	B	C	D	E	F
Random Number Seed					X	
Random Sampling by Variable Dist.				X	X	
Arithmetic Constructs	X			X	X	X
Parameter Passing	X	X		X	X	
Simulate for Multiple Periods				X		
Statistical Summary Precision				X		
Queue Manipulation			X	X		
Resource Logic		X	X	X		
Variable Time Units				X		

Figure 2-2. Simulator Testing - Functional Requirements Cross-Reference

	A	B	C	D	E	F
Keywords		X		X		
Message Routing				X		
Process Triggering	X		X	X	X	
Action Restart	X					
File Input and Output		X				
Batch Processing			X			

Figure 2-2. Simulator Testing - Functional Requirements Cross-Reference (cont'd)

2.1.4 Replot User Interface Test Description

The Replot User Interface is used to plot selected simulation results. Test Procedure 2.4.4 is designed to verify that the following capabilities are available:

- List saved plot sets (definitions or data)
- Retrieve saved plot data sets
- Save plot data sets
- Display plots
- Delete saved plot sets
- Modify time units for display of plot data
- Display plot data from sets created with two different time units

2.1.5 Hardcopy User Interface Test Description

The Hardcopy User Interface is used to document the graphical description of model Processes. Processes can be plotted individually or all Processes in a model can be plotted. Test Procedure 2.4.5 is designed to verify that the following capabilities are available:

- Specify paper size on HP2631G printer and print size for TEK4695 copier (there is only one size of copy on the HP2623 terminal's printer)
- Plot individual Processes

- Plot all model Processes

2.1.6 Library User Interface Test Description

The Library User Interface is used to access the five functions of the Library Function. The Library Function is used to check models into and out of a user's library or the system library, to merge parts of libraries into and out of a user's data base and to convert versions 3.0 and 4.0 data bases to version 5.0 compatible data bases. Test procedure 2.4.6 is designed to verify that the following capabilities are available:

- List the models in a library
- List the contents of a specific library
- Check a model out of a library
- Merge a model into a data base without conflicts
- Resolve naming conflicts in a model to be merged into a data base
- List entities in a data base
- Select entities to be merged out
- Check a model into a library
- Delete a model from a library
- Convert a version 3.0 data base to version 5.0
- Convert a version 4.0 data base to version 5.0

2.1.7 File Management User Interface Test Description

The File Management User Interface is used to create and enter data into a file that can be read by the READ primitive. Test procedure 2.4.7 is designed to show that the following capabilities are available:

- Create files
- Add data to a file
- Delete data from a file
- Error check data entered into a file
- List data in a file
- Display help information about the File Management commands
- Modify data in a file that was not created through this interface

2.1.8 Help Editor Interface Test Description

The Help Editor Interface is used to add and modify information that is available to users via the HELP command. The user cannot change AISIM-provided information but can add and modify user-supplied information under the categories of notes, procedures, and guidelines. Test procedure 2.4.8 is designed to show that the following capabilities are available:

- display help information
- add help information
- modify help information
- delete help information
- list the names of available help topics

2.2 Test Equipment

Acceptance testing will be performed on AISIM versions 4.2V and 5.0V which are to be rehosted on the MITRE Corporation VAX 11/780 in the Bedford Computer Center. This testing will take place at the Hughes facility. The following equipment is required for this testing:

- 1 AISIM supported graphics terminal
- 1 AISIM supported printer connected to terminal
- connection to a computer system on which AISIM is hosted

2.3 Test Conditions

All input data will be entered by the tester in interactive mode. Some simulations will be run in batch mode. The specific inputs are listed in section 2.4. No other test conditions apply to this test plan.

2.4 Test Procedures

The test procedures in this manual are presented in tabular form. Each test includes a list of the functions to be performed, user commands to perform the test, expected results of each command and function, and an area for recording the test results.

Since AISIM can be used from various terminals (HP2647A, HP2648A, HP2623, TEK4105 and VT100), the AISIM interfaces should be verified for any of these terminals which will be used for running AISIM. Designation of the terminal in use is made the first time a user invokes a function for a given AISIM session. The available terminal designations are the following:

HP - HP2647A and HP2648A terminals
HP23 - HP2623 terminals

TEK - Tektronix 4105 terminals
VT - VT100 terminals

All following test procedures are the same for all terminal types except where specifically noted. Any differences in expected results are also noted.

Throughout the acceptance tests, data is entered into AISIM forms. Figure 2-3 describes the function keys which are used to move through the forms on each terminal. Following is a description of the ways in which a user can move through a form. These movements correspond to the column headings in the figure.

UP - If the cursor is in a block of fields, such as Resource attributes, the cursor will move up to the field above it. If the cursor is in a single field or at the top of a block, the cursor will move to the end of the next field above it. If there are no fields above it, the cursor will wrap to the end of the last field in the form.

DOWN - If the cursor is in a block of fields, such as Resource attributes, the cursor will move down to the field below it. If the cursor is in a single field or at the bottom of a block, the cursor will move to the beginning of the next field below it. If there are no fields below it, the cursor will wrap to the beginning of the first field in the form.

LEFT - The cursor will move one position to the left in the current field. If the cursor is at the beginning of a field, it will move to the end of the previous field. If the cursor is at the top of the form, it will wrap to the end of the last field in the form.

RIGHT - The cursor will move one position to the right in the current field. If the cursor is at the end of a field, it will move to the beginning of the next field. If the cursor is at the end of the form, it will wrap to the beginning of the first field in the form.

ENTER - Exit the form and send the data to the forms processing portion of the AISIM system.

+FIELD - Move the cursor to the beginning of the next field in the form. If the cursor is at the end of the form, it will wrap to the top of the form.

-FIELD - Move the cursor to the end of the previous field in the form. If the cursor is at the top of the form, it will wrap to the end of the last field in the form.

	UP	DOWN	LEFT	RIGHT	ENTER	+FIELD	-FIELD
HP2647A	F1	F2	F3	F4	F5	<cr>	F6
HP2648A	F1	F2	F3	F4	F5	<cr>	F6
HP2623	F1	F2	F3	F4	F5	<cr>	F6
TEK4105	F1	F2	F3	F4	F5	<cr>	F6
VT100	↑	↓	<--	-->	PF1	<cr>	PF2

2.4.1 AISIM Executive Test Procedure

This test exercises the commands available from the AISIM READY level and the LIBRARY READY level. One command, the EDIT command, operates on files which have not yet been created by these test procedures. The tests are included in this section for consistency, but they cannot be performed until after the tests in section 2.4.3 and 2.4.6 have been performed. The tests in this section should be performed from directory [.AISIM.TEST42] or [.AISIM.TEST50] in the account where AISIM is hosted.

FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
1. Initiate an AISIM session.		
AISIM	AISIM executive messages are displayed. AISIM READY and ">" prompt are displayed.	
2. List current parameters before any are defined.		
list	Current parameters are listed. Version is 4.2 or 5.0, terminal is undefined, project is undefined, and user is the user's id.	

FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
3. Backup a design data base.		
backup p(testdbl)	Current parameters are listed. User is asked to continue or abort. User enters "yes". Data base is copied to testdbl.bck.	
4. Restore a design data base from backup.		
restore p(testdbl)	Current parameters are listed. User is asked to continue or abort. User enters "yes". Data base testdbl.bck is copied to testdbl.dbf.	
5. Change the parameters in effect for the current session.		
c p(testdba) t(vt) c t(tek) c p(testdbb)	Current parameters are displayed after each selection.	
6. Test Msgoff command.		
msgoff c p(testdba) t(hp) list	Current parameters are not displayed for CHANGE command. Parameters are verified with LIST command.	
7. Test Msgon command.		
msgon c p(testdbl) t("term")	Current parameters are displayed for CHANGE command. Replace "term" with designation for terminal currently being used.	

	FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
8.	Delete temporary AISIM files		
	delf p(testdb1)	Current parameters are listed. User is asked to continue or abort. User enters "yes". Working files for a project are deleted. There are none at this point in the test. This test can be repeated after tests 2.4.2 and 2.4.3, and verified with a "DIR" command.	
9.	Edit simulation reports and trace file.		
	edit p(testdbb) edit trace	There are no files at this time. Response informs user that file does not exist. This test can be performed after test 2.4.3 is completed. Use "quit" to exit the editor.	
10.	Create a listing of a model.		
	glist p(testdba)	Current parameters are listed. User is asked to continue or abort. User enters "yes". A listing of project testdba is created and printed.	
11.	Display help information.		
	help	A description of the AISIM READY level and a list of the valid commands is displayed. Enter a carriage return in response to the "SUBTOPIC NAME" prompt. User enters three carriage returns and the AISIM READY and ">" prompt are displayed.	

FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
help @concept	A discussion of the top level concept topic and the available topic names are displayed. The user enters 'SCENARIO'. Three carriage returns will page through the help provided on scenarios. User enters two carriage returns and the AISIM READY and ">" prompt are displayed.	
12. Invoke Library function.		
lib	LIBRARY READY and ">" prompt are displayed.	
13. Change parameters of current session.		
c b(testbuf)	New parameters are listed.	
14. Edit a buffer file.		
edit	There is no buffer at this time. Response informs user that file does not exist. This test can be performed after test 2.4.6. Use "quit" to exit the editor.	
15. Display valid Library commands.		
help	A description of the LIBRARY READY level and a list of the valid commands are displayed. One carriage return will page through the help provided. User enters a carriage return in response to the "SUBTOPIC NAME?" prompt. User enters two carriage returns and the LIBRARY READ and ">" prompt are displayed.	
16. List current parameters.		
list	Current parameters in effect are displayed.	

FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
17. Return to AISIM READY level.		
end	AISIM READY and ">" prompt are displayed.	

2.4.2 Design User Interface Test Procedure

This test exercises the commands available in the Design User Interface. The test is structured such that results of functions which are not directly observable are verified as part of the test. For example, when a node is placed in the architecture with predefined Resource attributes, the presence of these attributes is verified later in the test.

FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
1. Invoke Design User Interface.		
d p(intgtest) t("term")	"Term" is replaced by terminal designation for terminal being used. User is asked to continue or abort. User enters "yes". Create data base prompt is displayed. User enters "yes". Data base is copied. "*" prompt is displayed.	
2. Edit one of each of the following entity types.		
e r,restest,new e i,itemtest,new e t,tabltest,new e v,vartest,new e c,contest,new e q,quetest,new e l,loadtest,new	Appropriate entity form is displayed. User enters random data into forms and enters them. "*" prompt is displayed.	
3. Edit new scenario entity.		
e s,scentest	Message is displayed indicating that "scentest" does not exist and the user is asked if (s)he wishes to create it. User enters "yes". User verifies that	

FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
	default units in the form are seconds and test proceeds as in 2 above.	
4. Edit new process entity.		
e p,proctest,new	Process form is displayed. User enters random data into form and enters it. "#" prompt is displayed.	
5. Display process editor menu.		
menu	On an HP2647A, HP2648A, or TEK4105 terminal, the list of Primitives is displayed, or on an HP2623 or VT100 terminal, a message is displayed informing the user that the menu will not fit on the screen.	
6. Place each of the following Primitive types.		
p alloc p assign p branch p call p create p comment p compare p dealloc p destroy p entry p file p find p lock p loop p prob p reset p remove p resume p send p suspend p test p trace p unlock p wait	Each Primitive form is displayed. User enters miscellaneous data and enters form. "#" prompt is displayed. User issues next Place command. The screen is redrawn whenever the newest Primitive would be placed off the screen. The new Primitive appears at position three on the screen.	

FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
7. Automatic File and Action creation.		
p action p read p write p write p action	For action name enter "acttest". Verify that the units field contains "seconds". For read file enter "filetest". For first write file enter "filetst2". For second write file enter "filetst3". For second action name enter "acttst2". After the forms are entered, the system will notify the user that corresponding entities are being created.	
8. Test display of Eval primitive.		
p eval	Type the following parameters: variable: "delay", expression: "length*time", comment: "calculate delay time". Enter the form. Variable, expression, and comment are displayed. Comment is enclosed in single quotes.	
c 31	Change expression as follows: "abc+def-ghi/klm+random-log10(100.0)+loge(100.0)** sine(2)-tangent(2)*table (5)+integer (random*10)". Enter form. Four lines of expression and no comment are displayed.	
c 31	Blank out last line of expression and comment. Enter form. Three lines of expression are displayed and following line is blank.	

FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
9. Display portions of Process moving both up and down.		
u 13 d 5 top bottom	User enters combination of movement commands. After each command, screen is erased and new portion of Process is displayed. "#" prompt is redisplayed.	
10. Change selected Process Primitives.		
c 1 c 2 c 3 c 8 c 10 c 15	Change various primitives of Process. In response to change command, specified Primitive form is displayed with existing information. User changes information as desired and enters form. System responds by redrawing screen to show changed primitive and displaying "#" prompt. If primitive is off the screen, it is redrawn at position three.	
11. Delete selected Process Primitives.		
top del 5 del 2,2 del 13 down 23 del 26,2	Display top of process. Randomly select Primitives to be deleted. In response, the selected Primitive and those displayed below it are erased. Primitives below one selected are redrawn. Note that Primitives may only be deleted if presently shown on the screen, so "del 13" command is rejected. "Del 26" command causes file entity "filetst3" and action entity "actst2" to be deleted also. "#" prompt is displayed.	
12. Set Nodraw mode.		
nodraw	Mode is set to Nodraw and "#" prompt is displayed.	

	FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
13.	Test Nodraw mode.		
	top c 3 c 5	Display top portion of Process. Modify selected Primitives. The changes are not reflected on the screen. "#" prompt is displayed.	
14.	Display process to show changes.		
	redraw	Top portion of Process is redrawn reflecting all changes. "#" prompt is displayed.	
15.	Exit the Process Editor.		
	end	Screen is cleared and "*" prompt is displayed.	
16.	Verify automatic deletion of file and action entities.		
	list file	Files "filetest" and "filetst2" should be listed.	
	list action	Action "Acttest" should be listed.	
17.	Copy one of each entity type.		
	copy r,restest,res2 copy f,filetest,file2 copy i,itemtest,itm2 copy t,tabltest,tabl2 copy a,acttest,act2 copy v,vartest,var2 copy c,contest,con2 copy q,quetest,q2 copy l,loadtest,load2 copy s,scentest,scen2 copy p,proctest,proc2	User enters list of commands, one at a time. User is prevented from copying file entity. After each command, "*" prompt is displayed.	
18.	Verify that Copy commands worked.		
	list r	Original entities and	

FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
list f list i list t list a list v list c list q	copies are listed. "*" prompt is displayed after each command.	
list l list s list p		
19. Delete original of each entity type.		
del r,restest del i,itemtest del t,tabltest del a,acttest del v,vartest del c,contest del q,quetest del l,loadtest del s,scentest del p,proctest del f,filetest	For action "acttest" a message is displayed noting that action is still referenced by action primitives. User is prevented from deleting file "filetest". After each command, system performs processing and displays "*" prompt.	
20. Change default time units for forms.		
units minutes	"*" prompt is displayed	
21. Verify time units change.		
e l,loadtime,new e s,scentime,new e p,proctime,new p action end	For load and scenario, the user can verify that the time units are minutes and enter the form. For the process, enter the first form and then place the action primitive when the "#" prompt appears. Verify the units, enter the form, and exit the process editor interface. "*" prompt is displayed.	
22. Test character validation.		
e r,res.ab,new	Message notifies user that	

FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
	name has invalid character ".". Enter name RES_S. Enter the following parameters: initial units: 5.0, total units: 5.A, descr: test valid chars!!!, attributes: name1, attr1, name2, % time. Enter form. As prompted, enter 5.0 for 5.A and time1 for % time.	
23. Change description of a file entity and prohibit name change.		
e f,filetst2	Change name to "filetest". Enter form. Message is displayed informing user that name change is not allowed.	
e f,filetst2	Change description to "file entity for filetest".	
24. List each entity type.		
list r list f list i list t list a list v list c list q list l list s list p	For file entities both files previously created are displayed. Otherwise, copied entities and new load, scenario and process entities are displayed.	
25. Save the data base.		
save	Terminal beeps. "*" prompt is displayed.	
26. Delete existing Resources and verify. Create new Resource.		
del r,* list r e r,archtest	Processing performed and "*" prompt is displayed. User lists resources to verify that all	

FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
	are deleted. System provides null list and displays "*" prompt. User enters new Resource, filling in Resource form with miscellaneous information.	
27. Edit an architecture.		
a	Screen is cleared. Architecture grid is drawn. "#" prompt is displayed. If terminal is a VT100, Nodraw mode is set, so the following changes are not reflected on the screen.	
28. Definition of symbol/Resource prototypes for various symbols.		
def sqr,archtest def bus def crd def dia def drm def dsk def lod def plg def prp def ptr def rec def tap def tri def tty	After processing each command, the system displays a "#" prompt. The user should note that the form displayed is the same that was entered for the Resource archtest. After the user enters each command, the system displays the form for the specified symbol. This form is the same as that for resource entities. The user should enter miscellaneous information into this form and enter it. The "#" prompt is displayed.	
29. Placement of symbols and connections.		
p sqr,AA,20,20 p tri,BB,40,40 p lod,CC,60,40 con AA,CC,con1 con AA,BB,con2_F	Starting with these mmands, create an rchitecture. On a terminal other than a VT100, when the cursor appears for the "con" commands, type any character except period to complete connection. If on a VT100, a straight-line connection	

	FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
		is automatically created; type "redraw" to show changes.	
30.	Move a symbol within the architecture.		
	move AA,30,30	Symbol is erased and redrawn at new location. Connection is replaced. "#" prompt is displayed. If on a VT100 terminal, type "redraw" to verify.	
31.	Redo a connection within the architecture using multiple segments.		
	recon con2_F	If the user is not on a VT100, the connection is erased and graphics cursor is displayed to user. Enter the connection by moving graphics cursor, typing a period, moving graphics cursor, typing a period, and typing any non-period alphanumeric character. If the user is on a VT100, a straight-line connection is automatically created between the two nodes; use "redraw" to verify -- connection should be the same as step 28.	
32.	Window view space over work space.		
	win d,20 win u,10 win r,30 win l,20 win r,20,u,10 win l,10,d,30	Issue various window commands as shown at left. After each command the screen is erased and then redrawn at a new location. "#" prompt is displayed.	
33.	Manipulate LPT functions.		
	list lpt	LPT is listed in alpha	

FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
	memory of terminal. LPT should represent point-wise connection of adjacent nodes. "#" prompt is displayed.	
list path,AA,BB list path,BB,CC	Should provide path only when adjacent nodes are specified. System responds with "NO SUCH PATH" for nonadjacent nodes. "#" prompt is displayed.	
def path,BB,CC, con2_F,con1	User defines a path through several nodes. System processes command and displays "#" prompt.	
list path,BB,CC	"From node" and "To node" should be the same nodes as used in processing command. Path just entered and all subpaths are displayed. "#" prompt is displayed.	
list lpt	LPT is listed as above. Defined path is added. "#" prompt is displayed.	
del path,BB,CC	Use "from node" and "to node" as above. System processes command. "#" prompt is displayed.	
list path,BB,CC	Use "from node" and "to node" as above. System responds with "NO SUCH PATH". "#" prompt is displayed.	
list lpt	LPT is listed as in last list lpt command except deleted path is gone. "#" prompt is displayed.	
34. Change node and connection parameters.		
chg name,CC,XX	Node name is changed on screen, if not on a VT100	

	FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
		terminal. If on a VT100, type "redraw" to verify. "#" prompt is displayed.	
	list lpt	Note change to new node name in LPT. "#" prompt is displayed after listing of LPT.	
	chg size,BB,4 list lpt chg type,AA,plg list lpt	Appropriate changes are made. After each command, list LPT and verify no change to LPT. "#" prompt displayed after each command in this sequence. On a VT100, use "redraw" to verify changes.	
	chg name,Con1,Conx list lpt	Connection name is changed. List LPT to verify correct LPT change. "#" is displayed after each command. On a VT100, use "redraw" to verify change.	
35.	Save data base while in architecture.		
	save	Terminal beeps. "#" prompt is displayed.	
36.	End architecture session.		
	end	Screen is cleared. LPT message prompts are output. "#" prompt is displayed.	
37.	Verify LPT algorithm operation.		
	info	Messages describing LPT algorithms are displayed. "#" prompt is displayed.	
	end	No LPT processing done. "*" prompt is displayed. User should reenter architecture, list lpt, and verify that no change has occurred. User then ends architecture session again and uses next input as response to LPT	

	FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
		generator prompt.	
	a	LPT algorithm A operates. Control is passed to DUI. "*" prompt is displayed. User should reenter architecture, view LPT with "list lpt" and verify against the architecture. User then returns to DUI session, enters architecture design editor, and receives LPT messages again.	
	b	LPT algorithm B operates. Same prompts and sequences should be reported as in previous step.	
	c	LPT algorithm C operates. "*" prompt is displayed.	
38.	Verify architecture nodes are represented in list of Resources.		
	list r	List of Resources is displayed. User verifies presence of all architecture node and channel Resources, including _A and _B Resources for _F connections used in architecture.	
	e r,AA (representing plg in architecture) e r,BB	Resource form presented. User verifies presence of attributes as specified in Step 28. Repeat for triangle symbol. "*" prompt is displayed after entering forms.	
39.	Reenter Architecture.		
	a	Grid is redrawn. "#" prompt is displayed.	

	FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
40.	Delete architecture nodes and connections and exercise help.		
	win 1,20,u,30 del conx del con2_F del BB del *	Use various delete commands as shown at left to verify use of each. Appropriate symbols and connections are deleted. Del * causes diagram to be cleared. "#"	
	help	prompt is displayed after processing of each command. Type "redraw" on VT100 terminal to verify. View help display. Enter carriage return to receive "#".	
41.	Exit the architecture editor.		
	end	Screen is cleared. LPT generator prompt messages are displayed. "#" prompt is displayed.	
42.	End LPT.		
	end	"*" prompt is displayed.	
43.	Obtain help information.		
	help	A description of the DUI and a list of available commands appears. Two carriage returns will page through the help provided. User enters "delete" in response to the "SUBTOPIC NAME?" prompt. One carriage return will page through the additional help information displayed. Enter a carriage return in response to the "SUBTOPIC NAME?" prompt. User enters two carriage returns and the "*" prompt is displayed.	

FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
44. End DUI.		
end	Data base save yes/no save prompt is displayed. User responds yes or no as desired. If no, DUI ends and AISIM READY prompt is displayed. If yes, terminal beeps and then AISIM READY is displayed.	

2.4.3 Analysis User Interface Test Procedure

The Analysis User Interface test procedure verifies four functions:

1. that a model data base can be translated by the Translate Function,
2. that the translated model can be initialized by the Analysis User Interface,
3. that the Analysis User Interface commands can be successfully exercised against the initialized model, and
4. that the capabilities of the simulator function properly.

FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
1. Invoke the Analysis User Interface (AUI).		
a p(testdb1)	User is queried "Yes to proceed, No to abort". User enters "Yes". Translation of model data base is performed. User is asked if (s)he wants to add a description of the run. User enters "yes". A form is displayed and user can modify description. Model initialization takes place. The following message is displayed: "NO ERRORS DETECTED IN MODEL TRANSLATION YOU MAY NOW ENTER COMMANDS". "#" prompt is then displayed.	

FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
2. List each entity type.		
l c l r l p l v l q l i	Appropriate list of entities is displayed and "#" prompt is displayed after each command. Check lists against Appendix A.	
3. Define Plots.		
def r,b6b1 # in wait queue cumulative mean def r,b4b5 # in busy queue cumulative mean def v,v_router current def p,mrs completion time cumulative mean def i,msg time in system cumulative mean def r,b1b2,b2b3 wait time cumulative mean	An attribute form for the selected entity type is displayed. User selects one attribute and enters form. A statistic form is displayed. User selects one statistic and enters form. Final command defines two Resource plots with one command. "#" prompt is displayed after each command.	
4. List current plot definition titles.		
list title	A list of the current plot definitons appears and the "#" prompt is displayed.	
5. Delete a plot definition.		
delete title,2	Plot definition is deleted. Deletion should be verified by repeating step 4. "#" prompt is displayed.	

FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
6. Set a breakpoint.		
set r,blb2,gt,0	Appropriate entity attribute and statistic selection forms are displayed. Pick condition such as current number in busy queue. User enters forms and receives "#" prompt is displayed.	
7. Initiate the simulation.		
go	Simulation begins. When breakpoint is reached, simulation is halted and user is allowed to enter commands. "#" prompt is displayed.	
8. Display selected entity statistics.		
lv r,blb2 lv r,h2 lv i,msg lv stream	All statistics associated with specified entity are displayed. Enter "y" to continue. "#" prompt is displayed.	
9. Edit variable.		
edit v,v_router,0	The screen is cleared and "#" prompt is displayed.	
10. Continue the simulation		
go	Simulation continues until terminated. Message indicating normal termination is displayed. User is allowed to enter commands. "#" prompt displayed.	

	FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
11.	Display the plots in various combinations.		
	plot	Menu of plots is displayed. User selects desired plots. Plots are displayed. "#" prompt is displayed. User should repeat for various plots.	
12.	Change units and redisplay last plot.		
	units minutes	Select same plots and note change in units on display. "*" prompt is displayed.	
13.	Save plot data and definitions		
	save def,defset1, definitions save plot,plotset1, run1 results	Definitions and plots are saved. Screen is cleared after each command and "#" prompted is displayed.	
14.	List the saved plot sets and definition sets.		
	1 plot 1 def	The names of each plot set and definition set and their descriptions are displayed. "#" prompt is displayed.	
15.	Exit Analysis User Interface.		
	end	Screen is cleared and AISIM READY prompt is displayed.	
16.	Reenter AUI.		
	a p(testdb1)	See step 1.	
17.	Edit selected constant to change simulation results.		
	edit c,secs_chr,150	"#" prompt is displayed.	

FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
18. Get plot definitions.		
get def,defset1	Screen is cleared and "#" prompt is displayed.	
19. Delete a plot definition.		
del title,6	See step 5.	
20. Set a breakpoint.		
set r,b3b4,gt,0	See step 6.	
21. Cancel the breakpoint.		
can	Breakpoint is cancelled. Screen is cleared followed by "#" prompt.	
22. Set infinite resources.		
infres b1b2,b2b3	Infinite resources set, for specific resources. "#" prompt is displayed.	
23. Execute simulation.		
go	Simulation executes. Initial message displays the real time at the start of the simulation. At the end of the real time and simulation time is displayed. Normal termination messages are displayed. "#" prompt is displayed.	
24. Save plot results.		
save plot,plotset2, run2 results	Plot results and plot definitions are saved. "#" prompt is displayed.	
save def,defset2, run2 definitions		
25. Exit the Analysis User Interface.		
end	See step 15.	

The following procedures test the capabilities of the AISIM simulator by the use of various data bases provided on the system tape. These data bases are called TESTDBA.DBF, TESTDBB.DBF, TESTDBC.DBF, TESTDBD.DBF, TESTDBE.DBF, and TESTDBF.DBF. Appendix B contains the initialization report for each of these data bases before any of the following tests are run, and Appendix C contains the output report for each after the following tests have been completed. These reports should be compared with the observed test results to verify the operation of the AISIM simulator.

	FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
26.	Test item, resource preemption, call Process, and action restart logic.		
	a p(testdba)	See step 1.	
	go	Initiate simulation. When simulation completes, message indicating normal termination is displayed. "#" prompt is displayed.	
	end	User exists AUI. Screen is cleared and AISIM READY prompt is displayed. Output report TESTDBA.RPT should be compared with report in Appendix C.	
27.	Test keywords, parameter passing, and Read/Write.		
	a p(testdbb)	See step 1.	
	go	Initiate simulation. When simulation completes, message indicating normal termination is displayed. "#" prompt is displayed.	
	end	User exits AUI. Screen is cleared and AISIM READY prompt is displayed. Output report TESTDBB.RPT should be compared with report in Appendix C.	

	FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
28.	Define plot definitions in preparation for batch mode processing.		
	a p(testdbc)	See step 1.	
	def i, msg	Attribute form is displayed. Select "time in system" and enter form. Statistics form is displayed. Select "cumulative mean" and enter form.	
	save def,onedef	Save plot definition.	
	end	User exits AUI. AISIM READY prompt is displayed.	
29.	Submit run to batch queue.		
	batch	User is asked to enter 1-8 character project name. "TESTDBC" should be entered. User is asked if model should be translated. "Yes" should be entered. User is asked if description is to be entitled. Enter "yes" and fill in form. User is prompted for commands. Enter: GET DEF,ONEDEF GO SAVE PLOT,ONEPLOT END NO User is notified that file subbatch.com is created.	
	submit/notify/ name=testdbc subbatch.com	Submit job to computer.	

	FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
	replot p(testdbc) get plot,oneplot plot end	When the job is completed, enter Replot to verify that the plot was saved. Retrieve the plot data and plot it. Then exit Replot and return to the AISIM READY prompt. Report TESTDBC.RPT should be compared with Appendix C.	
30.	Test variable time units, message routing, and resource logic.		
	a p(testdbd)	See step 1.	
	go	Initiate simulation. Verify display of end of period messages. When simulation completes, message indicating normal termination is displayed. "#" prompt is displayed.	
	end	User exits AUI. Screen is cleared and AISIM READY prompt is displayed. Output report TESDBD.RPT should be compared with report in Appendix C. Verify action "xfer" for use of scientific notation for very small numbers.	
31.	Test Arithmetic function.		
	a p(testdbe)	See step 1.	
	go	Initiate simulation. When simulation completes, message indicating normal termination is displayed. "#" prompt is displayed.	
	end	User exits AUI. Screen is cleared and AISIM READY prompt is displayed. Output report TESTDBE.RPT should be compared with report in Appendix C.	

FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
32. Test error handling for arithmetic constructs during initialization.		
a p(testdbf)	User is queried "yes to proceed, no to abort". User enters "yes". Translation of model data base is performed. A message indicating that errors were detected during initialization is displayed.	
edit	The report will be placed in the EDT editor so the user can examine the errors. The first error results from too few parentheses. Add ")" after "TDIS(1)".	
	The second error results from the use of brackets in a function call. The third error results from a missing operator between two variables. Correct with a "*" before TDIS(2). These errors should be corrected by reentering the DUI and repeating step 32.	
33. Test error handling in arithmetic constructs during execution.		
go	Initiate simulation. Simulation halts when an error is detected.	
end	The user exits the AUI, finds the error via the EDIT command. The error results from the use of brackets in a Table reference. The error should be corrected by using parentheses and the model re-analyzed. The run will again halt due to error. This time parentheses are mistakenly used in an entity reference. They should be replaced with brackets. The simulation will then run to termination.	

FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
end	User exits AUI and returns to the AISIM READY prompt.	

2.4.4 Replot User Interface Test Procedure

The Replot User Interface Test Procedure will be used to test all Replot commands and all capabilities of the Replot function as described in section 2.1.4.

FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
1. Invoke the Replot User Interface.		
replot p(testdbl)	User is queried "yes to proceed, no to abort". User enters "yes". "$" prompt is displayed.	
2. List set names and titles		
l def l plot l title	"L def" lists all plot definition sets, "l plot" lists all plot data sets, "l title" lists current plot titles--none at this point. "$" prompt is displayed.	
3. Retrieve each plot data set, selecting plots from each set.		
get plot,plotset1 get plot,plotset2	Plot titles in each set are displayed. User is allowed to select specific plots which are put in the current set of plots. "$" prompt is displayed.	
4. List titles		
l title	Titles of current plots are displayed. "$" prompt is displayed.	

FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
5. Display the plots in various combinations.		
plot	Current plot titles are displayed for user selection. After selection, plot is generated and "$" prompt is displayed.	
6. Change units and redisplay last plot.		
units minutes	Select same plots and note change in units on display. "$" prompt is displayed.	
7. Clear the current plots.		
clear	Current plot information is purged. "$" prompt is displayed.	
8. Repeat steps 3-5 selecting new plots.	See steps 3-5.	
9. Delete a plot set.		
delete plot,plotset1	Plotset is deleted. "$" prompt is displayed.	
10. Delete a definition set.		
delete def,defset1	Definition set is deleted. "$" prompt is displayed.	
11. List sets.		
1 def 1 plot	List of remaining sets of each type are displayed followed by "$" prompt.	
12. Save plot data to a new set.		
save plot,plotset3, plot saved in Replot	Plot set containing currently selected plots is created. "$" prompt is displayed.	

FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
13. Exit the Replot User Interface.		
end	Screen is cleared. AISIM READY prompt is displayed.	

2.4.5 Hardcopy User Interface Test Procedure

The Hardcopy User Interface test verifies that the data interface between the AISIM system and the terminal is operating properly, and it exercises the functions described in section 2.1.5.

FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
1. Invoke the Hardcopy User Interface - plot single Process.		
hcopy p(testdbl)	User is asked to continue or abort. User enters "yes". User is then prompted whether to plot all Processes. User enters "no". If the user is on an HP2647A or HP2648A terminal, the user is prompted for paper size and then to position paper. User positions paper. If the user is on a TEK4105 terminal, the user is prompted for copy size and to position paper. On an HP2623 user is prompted to position paper. On an HP2623 user is prompted to position paper. User is prompted for Processes to plot one at a time. Processes MRS, TO1, and TO2 are plotted. User is returned to AISIM READY level when user indicates desire to exit with carriage return.	
2. Invoke the HUI-plot all Processes.		
hcopy p(testdbl)	User is asked to continue or abort. User enters "yes".	

FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
	User is then prompted whether to plot all Processes. User enters "yes". If the user is on the HP2647A or HP2648A terminal, the user is prompted for paper size and to position paper. User positions paper. If the user is on a TEK4105 terminal, the user is prompted for copy size and to position paper. On an HP2623 terminal user is prompted to position paper. Processes are plotted. User is returned to AISIM READY level.	

2.4.6 Library User Interface Test Procedure

The five Library subfunctions are Checkin, Checkout, Convert, Mergein, and Mergeout. Test steps associated with the testing of Checkout are preceeded by a CO (i.e., CO1, CO2, CO3 etc.). Mergein steps are preceeded by an MI (i.e., MI1, MI2, etc.). Likewise Mergeout, Checkin, and Convert steps are preceeded by MO, CI, and CV respectively.

FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
Access the Library Functions		
Library	Enter command at the AISIM READY level. System responds with LIBRARY READY.	
CO1. Invoke the Checkout Function on the system library.		
co 1(system) b(testbuf)	System displays verification messages and prompt. User types yes. "You may now extract models from the library" is displayed as well as "*" prompt.	
CO2. List all models in the library.		
l *	All models in system library are listed. "*" prompt is displayed.	

FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
CO3. List the contents of a specific model.		
1 commun_a	For every legal entity type, all the entities of that type are displayed followed by "do you wish to continue listing the model?" query. User should respond yes until the "*" prompt is displayed after the Processes are listed.	
CO4. Flag a model to be Checked out.		
ext commun_a	The model is flagged for extraction. "*" prompt displayed.	
CO5. Exit the Checkout Function.		
end	A message is displayed when the Checkout is completed. The user is returned to the LIBRARY READY level.	
MI1. Invoke the Mergein Function using the same buffer with an empty data base.		
mi p(testdb) b(testbuf)	Verification messages and prompt are displayed. User responds "yes". User is asked if (s)he wants to create the project. User responds "yes". Messages are displayed indicating no naming conflicts. Mergein operation completes and LIBRARY READY prompt is displayed.	
MI2. Invoke the Mergein Function with same data base and buffer to create naming conflicts.		

FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
mi p(testdb) b(testbuf)	Verification messages and prompt displayed. User responds yes. This time the system tells the user that 7 conflicts were detected and asks if the user wishes to resolve these conflicts. User responds "yes".	
MI3. Resolve the naming conflicts.		
(msg) rn message (chlio) rp (control) ig (esr_call) rn call_esr (ihandler) rp (req_i/o) ig (router) ig	User responds to "option:" prompts and verification is given. Mergein operation is begun as soon as all naming conflicts are resolved.	
MO1. Invoke the Mergeout Function using the same buffer and data base.		
mo p(testdb) B(testbuf)	Verificaton messages and prompt displayed. User enters yes. User prompted to reuse buffer. User enters yes. "*" prompt is displayed.	
MO2. List entities in the data base.		
l item l variable l process	Entities of the specified types are displayed. "*" prompt is displayed.	
MO3. Select entities to be merged out and list them on the screen.		
s i,message s p,chlio	Selected entities are flagged to be merged out. "*" prompt is displayed.	
MO4. Flag duplicate selections.		
s i,message	Message will be displayed informing user of a duplicate	

FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
	selection. The entry is not flagged for selection.	
M05. List selections.		
1 sel	Selections are listed. "*" prompt is displayed.	
M06. Exit the Mergeout Function.		
end	The Mergeout operation is performed. The user is returned to the LIBRARY READY level.	
CI1. Invoke the Checkin Function using the same buffer and an empty library.		
ci l(testlib) b(testbuf)	Verification messages and prompt are displayed. User enters "yes". User is asked if the library should be created. User enters "yes".	
CI2. Describe the model to be checked in.		
(name) MODEL <number> <description>	The user is prompted for a document reference number and a description. User is asked if library update is to be permanent. User enters "yes".	
CO6. Invoke the Checkout Function using the same buffer and library.		
co l(testlib) b(testbuf)	Verification messages and prompt displayed. User enters "yes". Prompt to reuse buffer. User enters "yes". "*" prompt is displayed.	

FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
C07. List all models in the data base.		
1 *	Names of models in the data base are listed.	
C08. List the contents of the previously checked in model.		
1 model	The entities of model are listed as in C03 above.	
C09. Delete the model from the library.		
delete model	The model is deleted. "*" prompt is displayed.	
C010. Verify the deletion with the list command.		
1 *	Existing models are listed.	
C011. Exit the Checkout Function.		
end	User is returned to the LIBRARY READY level.	
CV1. Invoke the Conversion Function for a version 3.0 data base.		
conv p(testconv3) dbv(v30)	Verification messages and prompt are displayed. User enters "yes". Completion message is displayed and user is informed of the name of the file containing any error messages and and a log of name changes. User is returned to the LIBRARY READY level.	
CV2. Edit conversion report to view any errors or name changes.		
edit conv	View file with edit commands.	

FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
CV3. Verify conversion		
end glist p(testconv3)	Return to AISIM READY level. Invoke Genlist program to create a listing of the data base and place in file testconv3.lst. Compare with Appendix D.	
CV4. Invoke conversion function for a version 4.0 data base.		
lib	Return to LIBRARY READY.	
conv p(testconv4) dbv(v40)	Verification messages and prompt are displayed. User enters "yes". Completion message is displayed and user is informed of the name of the file containing any error messages and a log of name changes. User is returned to the LIBRARY READY level.	
CV5. Edit conversion report to view any errors or name changes.		
edit conv	View file with edit commands.	
CV6. Verify conversion.		
end glist p(testconv4)	Return to AISIM READY. Invoke Genlist program to create a listing of the data base and place in testconv4.lst. Compare with Appendix D.	

2.4.7 File Management User Interface Test Procedure

This test exercises the commands available in the File Management User Interface as described in 2.1.7.

FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
1. Invoke File Management		

FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
User Interface.		
F f(testfile)	Error checking is off. User is asked to continue or abort. User enters "yes". User is asked if file should be created. User enters "yes". FUI prompt "*" is displayed.	
2. Place one of each entity type.		
p p,1 p r,2 p i,3 p q,4 p t,5 p a,6 p al,7 p n,8 p r[],9 rattr1 rattr2 rattr3 p p[],12 pattr1 p i[],13 i1 i2 i3	Each form is displayed. User enters data into form and then enters the form. "*" prompt is displayed. User issues next place command.	
3. Delete lines from the file.		
del 1 del 4,6	Delete lines 1,4,5,6. User is informed of the number of lines deleted.	
4. List lines from the file.		
1 2 1 7,9	List lines, 2,7,8,9 from the file.	
5. Display help information.		
help	A description of the File Management User Interface and available	

FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
	commands is displayed. User enters one carriage return to page through the help provided. User enters "RENUM" in response to the "SUBTOPIC NAME?" prompt. Information on the RENUM command is displayed. Two carriage returns are entered and the "*" prompt is displayed.	
6. Insert a line and renumber the File.		
p r,2 renum	Places a resource at line 2.1 then the renumbering numbers the file lines 1-12.	
7. Test LISTON mode.		
liston p i,12	The item is placed after line 12 (at line 13) and line 13 is printed on the screen.	
8. Test LISTOFF mode.		
listoff p p,10	The process is placed at line 10, but the line is not printed.	
9. End	Save query is displayed. User enters "yes". Return to AISIM READY.	
10. Invoke File Management User Interface with error checking on.		
F f(testfile) e(testdbl)	Error checking is on and checks against project testdbl. User is asked to continue or abort. User enters "yes." "*" prompt displayed.	
11. Place attributes with error checking.		
p r[],B1,1	The template for resource B1 is displayed. User should enter values for all of B1 attributes.	

	FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
12.	Place entity with error checking.		
	p r,B1B2,2	The entity's existence is verified. The entity is then added at line 2.1.	
13.	List with error checking on.		
	list r	All of the resources in testdb1 will be listed on the screen.	
14.	Exit File Management Interface		
	end	Save query is displayed. User enters "yes". User is returned to the AISIM READY level.	
15.	Create file using text editor		
	edit/edt testin.txt	EDT editor is invoked. Enter the following values into the file: CASE1 CPU SPEED1 LENGTH1 OVHD1 Exit the editor, saving the data.	
	edit/edt case2in.txt	EDT editor is invoked. Enter the following values into the file: CASE2 CPU SPEED2 LENGTH2 OVHD2 Exit the editor, saving the data.	
16.	Invoke FUI for first case file.		
	F f(testin)	User is asked to continue or abort. User enters "yes". "*" prompt is displayed.	

	FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
	del 1	Delete first line.	
	p n,1	Replace first value with numeric. Enter "1" in form.	
	del 4,5	Delete last 2 lines.	
	p n,4	Enter "5" in form.	
	p n,5	Enter "2" in form.	
	end	Enter "yes" to save query. Return to AISIM READY.	
17.	Reinvoke FUI with error checking.		
	F f(testin) e(testdb2)	User is asked to continue or abort. User enters "yes". "*" prompt is displayed.	
	del 2	Delete second value.	
	p r,2	Place a resource at 2. Enter "CPUA". Error message is displayed since CPUA does not exist. Enter "CPU1".	
	del 3	Delete third value and	
	p n,3	replace it with a numeric. Enter "10".	
	end	Return to AISIM READY.	
18.	Modify case2in file in FUI.		
	F f(case2in)	User is asked to continue or abort. User enters "yes". "*" prompt is displayed.	
	del 5	Delete fifth value.	
	p n,5	Enter "ovhd2". Error message is displayed. Enter "3".	
	end	Return to AISIM READY.	
19.	Invoke FUI with error checking.		
	F f(case2in) e(testdb2)	User is asked to continue or abort. User enters "yes". "*" prompt is displayed.	

FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
del 1,4	Delete first four lines.	
p n,1	Enter "2".	
p r,2	Enter "CPU2".	
p n,3	Enter "20".	
p n,4	Enter "8".	
end	Enter "yes" to save query. Return to AISIM READY.	
20. Run simulation using Case 1 data.		
a p(testdb2)	User is asked to continue or abort. User enters "yes".	
go	User initiates simulation. Use "end" to exit AUI when simulation completes.	
21. Change file associations.		
edit/edt testdb2.fnm	Edit file associations file. Change lines to: TESTIN CASE2IN.TXT TESTOUT CASE2OUT.TXT Exit editor, saving data.	
22. Invoke AUI.		
a p(testdb2)	User is asked to continue abort. User enters "yes". "*" prompt is displayed.	
go end	User initiates simulation. Use "end" to exit AUI when simulation completes.	
23. Verify output files.		
type testout.txt	List first output file. File should contain the following values: $TEST1 PROC1 CPU1 MSG 52	
type case2out.txt	List second output file. File should contain the following values:	

FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
	$TEST2 PROC2 CPU2 MSG 163	

2.4.8 Help Editor Interface Test Procedure

This test exercises the commands available in the Help Editor Interface as in 2.1.8.

FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
1. Invoke HEI.		
HEI	User is asked to continue or abort. User enters "yes". "*" prompt is displayed.	
2. Display help information.		
help end	A description of the HEI end command is displayed. User enters a carriage return and the topic level screen is displayed. User enters update and a description of the HEI update command is displayed. User enters two carriage returns. "*" prompt is displayed.	
3. Invoke UPD.		
U	The UPDATE "#" prompt is displayed.	
4. Add help.		
add note,table-size	A form is displayed with the note name and the user enters help information.	
5. List help.		
l n	The available notes are listed.	

	FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
6.	Change help.		
	chg n,test	A message is displayed informing the user no note named test is available to change. "#" prompt is displayed.	
	chg,n,table-size	A form is displayed with the current help information. User can change information as desired, and then enter form.	
7.	Save help.		
	s end	The HEI "*" prompt is displayed.	
8.	Display help.		
	help @n,table-size	The information just entered is displayed. User enters two carriage returns.	
9.	Renter UPD.		
	u	"#" prompt is displayed.	
10.	Display help.		
	help delete,topic-name	Display help information on the delete command parameter, topic-name. User enters two carriage returns.	
11.	Remove help.		
	del n,table-size list n end	The table-size note will be deleted. User enters "yes" to save changes and "*" prompt will be displayed.	
12.	Exit HEI		
	end	Return to AISIM READY.	

2.5 Sample Completed Test Procedure

Figure 2-3 shows an example of a test procedure annotated with the results of exercising the procedure. This will be the form used to generate the acceptance test report.

2.6 Certification Statement

The acceptance test report will contain the following certification statement which will be signed by Lt. Michael F. Merriman, Project Officer, Requirements Analysis.

> All tests as described in this report have been performed and results have been observed and noted herein.

The test procedures contained in this manual are certified to be acceptable for acceptance testing of AISIM version 5.0.

	FUNCTION/COMMANDS	ADDITIONAL INPUTS/ EXPECTED RESULTS	TEST RESULTS
1.	Invoke Design User Interface		
	d p(intgtest) t(term)	"Term" is replaced by terminal designation for terminal being used. User is asked to continue or abort. User enters "yes". Create data base prompt is displayed. User enters "yes". Data base is copied. "*" prompt is displayed.	Design function invoked.
2.	Edit one of each of the following entity types.		
	e r,restest,new e i,itemtest,new e t,tabltest,new e v,vartest,new e c,contest,new e q,quetest,new e l,loadtest,new	Appropriate entity form is displayed. User enters random data into forms and enters them. "*" prompt is displayed.	Each entity form displayed correctly and data entered.
3.	e s,scentest	Message is displayed indicating that "scentest" does not exist and the user is asked if (s)he wishes to create it. User enters "yes" and test proceeds as in 2 above.	Request to create entity displayed. Form was displayed and data entered.
4.	e, p,proctest,new	Process form is displayed. User enters random data into form and enters it. "#" prompt is displayed.	Process form displayed without query and data entered.
5.	menu	On an HP2647A, HP2648A, or TEK4105 terminal, the list of Primitives is displayed, or on an HP2623 or VT100 terminal, a message is displayed informing the user that the menu will not fit on the screen.	Menu displayed correctly.

Figure 2-3. Sample Test With Results

APPENDIX A

Model Description and Results Verification for

TESTDB1.DBF - Run 1

```
$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$
$                    S I M U L A T I O N   R E P O R T                    $
$                            AISIM VERSION 5.0                            $
$                         HUGHES AIRCRAFT COMPANY                         $
$                              05/15/87                                   $
$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

                        04/21/1987        10:23:09

                        TESTDB1 - RUN1

TEST THE USE OF VARIOUS AUI COMMANDS




GLOBAL CONSTANT DEFINITION.....

CONSTANT INITIAL
MNEMONIC VALUE    COMMENT
======== ======== ==================================================
SECS_CHR 187      MSECONDS PER CHARACTER SERIAL TRANSFER

FILE DEFINITION.....

FILE
MNEMONIC          COMMENT
======== ======== ==================================================

TABLE DEFINITION....


GLOBAL VARIABLE DEFINITION.....

VARIABLE INITIAL
MNEMONIC VALUE    COMMENT
======== ======== ==================================================
V_ROUTER 0        MONITOR VARIABLE TO PLOT ROUTE OVERHEAD

ITEM DEFINITION......

ITEM                        DESCRIPTION
======== ================== ==========================================
```

```
PAGE    2
MSG                          MESSAGE FOR INTERNODE COMMUNICATION
          ATTR.      INITIAL
          NAME       VALUE
          ========   ========
          CNODE      $CNODE
          FNODE      $CNODE
          LENGTH     99999999
          RPROC      $ERROR
          RPROCPRI   99999999
          TNODE      $CNODE
          TYPE       $REQNORE


QUEUE DEFINITION.....

QUEUE     MAXIMUM
MNEMONIC    SIZE    COMMENT
========  ========  ============================================================

RESOURCE DEFINITION.....

RESOURCE  TOTAL     INITIAL
MNEMONIC  # UNITS   # UNITS   DESCRIPTION
========  ========  ========  ========================================
B1        1         1         RESOURCE FOR CPU NODE
          ATTR.     INITIAL
          NAME      VALUE
          ========  ========
          D_CS      0
          M_CS      2
          M_ROUTE   0
          RATE      SECS_CHR

B1B2      1         1         RESOURCE FOR CHANNEL CONNECTOR
          ATTR.     INITIAL
          NAME      VALUE
          ========  ========
          RATE      56

B2        1         1         RESOURCE FOR CPU NODE
          ATTR.     INITIAL
          NAME      VALUE
          ========  ========
          D_CS      0
          M_CS      2
          M_ROUTE   0
          RATE      SECS_CHR

B2B3      1         1         RESOURCE FOR CHANNEL CONNECTOR
```

ATTR. NAME	INITIAL VALUE
RATE	28

B3 1 1 RESOURCE FOR CPU NODE

ATTR. NAME	INITIAL VALUE
D_CS	0
M_CS	2
M_ROUTE	0
RATE	SECS_CHR

B3B4 1 1 RESOURCE FOR CHANNEL CONNECTOR

ATTR. NAME	INITIAL VALUE
RATE	28

B4 1 1 RESOURCE FOR CPU NODE

ATTR. NAME	INITIAL VALUE
D_CS	0
M_CS	2
M_ROUTE	0
RATE	SECS_CHR

B4B5 1 1 RESOURCE FOR CHANNEL CONNECTOR

ATTR. NAME	INITIAL VALUE
RATE	28

B5 1 1 RESOURCE FOR CPU NODE

ATTR. NAME	INITIAL VALUE
D_CS	0
M_CS	2
M_ROUTE	0
RATE	SECS_CHR

B5B6 1 1 RESOURCE FOR CHANNEL CONNECTOR

ATTR. NAME	INITIAL VALUE
RATE	28

```
B6          1           1          RESOURCE FOR CPU NODE
            ATTR        INITIAL
            NAME        VALUE
            ========    ========
            D_CS        0
            M_CS        2
            M_ROUTE     0
            RATE        SECS_CHR

B6B1        1           1          RESOURCE FOR CHANNEL CONNECTOR
            ATTR        INITIAL
            NAME        VALUE
            ========    ========
            RATE        28

BUFFER      1           1          BUFFER

H1          1           1          RESOURCE FOR NODE
            ATTR        INITIAL
            NAME        VALUE
            ========    ========
            D_CS        0
            M_CS        0
            M_ROUTE     0

H2          1           1          RESOURCE FOR NODE
            ATTR        INITIAL
            NAME        VALUE
            ========    ========
            D_CS        0
            M_CS        0
            M_ROUTE     0

H3          1           1          RESOURCE FOR NODE
            ATTR        INITIAL
            NAME        VALUE
            ========    ========
            D_CS        0
            M_CS        0
            M_ROUTE     0

H4          1           1          RESOURCE FOR NODE
            ATTR        INITIAL
            NAME        VALUE
            ========    ========
            D_CS        0
            M_CS        0
            M_ROUTE     0
```

```
H5          1           1          RESOURCE FOR NODE
            ATTR.       INITIAL
            NAME        VALUE
            ========    ========
            D_CS        0
            M_CS        0
            M_ROUTE     0

H6          1           1          RESOURCE FOR NODE
            ATTR.       INITIAL
            NAME        VALUE
            ========    ========
            D_CS        0
            M_CS        0
            M_ROUTE     0

HB1_A       1           1          RESOURCE FOR CHANNEL CONNECTOR
            ATTR.       INITIAL
            NAME        VALUE
            ========    ========
            RATE        SECS_CHR

HB1_B       1           1          RESOURCE FOR CHANNEL CONNECTOR
            ATTR.       INITIAL
            NAME        VALUE
            ========    ========
            RATE        SECS_CHR

HB2_A       1           1          RESOURCE FOR CHANNEL CONNECTOR
            ATTR.       INITIAL
            NAME        VALUE
            ========    ========
            RATE        SECS_CHR

HB2_B       1           1          RESOURCE FOR CHANNEL CONNECTOR
            ATTR.       INITIAL
            NAME        VALUE
            ========    ========
            RATE        SECS_CHR

HB3_A       1           1          RESOURCE FOR CHANNEL CONNECTOR
            ATTR.       INITIAL
            NAME        VALUE
            ========    ========
            RATE        SECS_CHR

HB3_B       1           1          RESOURCE FOR CHANNEL CONNECTOR
            ATTR.       INITIAL
```

NAME	VALUE	
RATE	SECS_CHR	

HB4_A	1	1	RESOURCE FOR CHANNEL CONNECTOR
ATTR.	INITIAL		
NAME	VALUE		
RATE	SECS_CHR		

HB4_B	1	1	RESOURCE FOR CHANNEL CONNECTOR
ATTR.	INITIAL		
NAME	VALUE		
RATE	SECS_CHR		

HB5_A	1	1	RESOURCE FOR CHANNEL CONNECTOR
ATTR.	INITIAL		
NAME	VALUE		
RATE	SECS_CHR		

HB5_B	1	1	RESOURCE FOR CHANNEL CONNECTOR
ATTR.	INITIAL		
NAME	VALUE		
RATE	SECS_CHR		

HB6_A	1	1	RESOURCE FOR CHANNEL CONNECTOR
ATTR.	INITIAL		
NAME	VALUE		
RATE	SECS_CHR		

HB6_B	1	1	RESOURCE FOR CHANNEL CONNECTOR
ATTR.	INITIAL		
NAME	VALUE		
RATE	SECS_CHR		

ARCHITECTURE LEGAL PATH DEFINITION

FROM DEVICE	TO DEVICE	NEXT DEVICE	VIA LINK
B1	B2	B2	B1B2
B1	B3	B2	B1B2
B1	B4	B2	B1B2
B1	B6	B2	B1B2

B1	B6	B2	B1B2
B1	H1	H1	HB1_B
B1	H2	B2	B1B2
B1	H3	B2	B1B2
B1	H4	B2	B1B2
B1	H5	B2	B1B2
B1	H6	B2	B1B2
B2	B1	B3	B2B3
B2	B3	B3	B2B3
B2	B4	B3	B2B3
B2	B5	B3	B2B3
B2	B6	B3	B2B3
B2	H1	B3	B2B3
B2	H2	H2	HB2_B
B2	H3	B3	B2B3
B2	H4	B3	B2B3
B2	H5	B3	B2B3
B2	H6	B3	B2B3
B3	B1	B4	B3B4
B3	B2	B4	B3B4
B3	B4	B4	B3B4
B3	B5	B4	B3B4
B3	B6	B4	B3B4
B3	H1	B4	B3B4
B3	H2	B4	B3B4
B3	H3	H3	HB3_B
B3	H4	B4	B3B4
B3	H5	B4	B3B4
B3	H6	B4	B3B4
B4	B1	B5	B4B5
B4	B2	B5	B4B5
B4	B3	B5	B4B5
B4	B5	B5	B4B5
B4	B6	B5	B4B5
B4	H1	B5	B4B5
B4	H2	B5	B4B5
B4	H3	B5	B4B5
B4	H4	H4	HB4_B
B4	H5	B5	B4B5
B4	H6	B5	B4B5
B5	B1	B6	B5B6
B5	B2	B6	B5B6
B5	B3	B6	B5B6
B5	B4	B6	B5B6
B5	B6	B6	B5B6
B5	H1	B6	B5B6
B5	H2	B6	B5B6
B5	H3	B6	B5B6
B5	H4	B6	B5B6

B5	H5	H5	HB5_B
B5	H6	B6	B5B6
B6	B1	B1	B6B1
B6	B2	B1	B6B1
B6	B3	B1	B6B1
B6	B4	B1	B6B1
B6	B5	B1	B6B1
B6	H1	B1	B6B1
B6	H2	B1	B6B1
B6	H3	B1	B6B1
B6	H4	B1	B6B1
B6	H5	B1	B6B1
B6	H6	H6	HB6_B
H1	B1	B1	HB1_A
H1	B2	B1	HB1_A
H1	B3	B1	HB1_A
H1	B4	B1	HB1_A
H1	B5	B1	HB1_A
H1	B6	B1	HB1_A
H1	H2	B1	HB1_A
H1	H3	B1	HB1_A
H1	H4	B1	HB1_A
H1	H5	B1	HB1_A
H1	H6	B1	HB1_A
H2	B1	B2	HB2_A
H2	B2	B2	HB2_A
H2	B3	B2	HB2_A
H2	B4	B2	HB2_A
H2	B5	B2	HB2_A
H2	B6	B2	HB2_A
H2	H1	B2	HB2_A
H2	H3	B2	HB2_A
H2	H4	B2	HB2_A
H2	H5	B2	HB2_A
H2	H6	B2	HB2_A
H3	B1	B3	HB3_A
H3	B2	B3	HB3_A
H3	B3	B3	HB3_A
H3	B4	B3	HB3_A
H3	B5	B3	HB3_A
H3	B6	B3	HB3_A
H3	H1	B3	HB3_A
H3	H2	B3	HB3_A
H3	H4	B3	HB3_A
H3	H5	B3	HB3_A
H3	H6	B3	HB3_A
H4	B1	B4	HB4_A
H4	B2	B4	HB4_A
H4	B3	B4	HB4_A

```
H4          B4          B4          HB4_A
H4          B5          B4          HB4_A
H4          B6          B4          HB4_A
H4          H1          B4          HB4_A
H4          H2          B4          HB4_A
H4          H3          B4          HB4_A
H4          H5          B4          HB4_A
H4          H6          B4          HB4_A
H5          B1          B5          HB5_A
H5          B2          B5          HB5_A
H5          B3          B5          HB5_A
H5          B4          B5          HB5_A
H5          B5          B5          HB5_A
H5          B6          B5          HB5_A
H5          H1          B5          HB5_A
H5          H2          B5          HB5_A
H5          H3          B5          HB5_A
H5          H4          B5          HB5_A
H5          H6          B5          HB5_A
H6          B1          B6          HB6_A
H6          B2          B6          HB6_A
H6          B3          B6          HB6_A
H6          B4          B6          HB6_A
H6          B5          B6          HB6_A
H6          B6          B6          HB6_A
H6          H1          B6          HB6_A
H6          H2          B6          HB6_A
H6          H3          B6          HB6_A
H6          H4          B6          HB6_A
H6          H5          B6          HB6_A
```


ACTION DEFINITION.....

ACTION MNEMONIC	COMMENT
CS_OH	PROCESSING TO PERFORM CONTEXT SWITCHING
ROUTE_OH	PROCESSING DELAY TO ROUTE A MESSAGE
XFER_OH	DELAY FOR TRANSFER

PROCESS DEFINITION.....

PROCESS MNEMONIC	DESCRIPTION
CHANPROC	FULL AND HALF DUPLEX CHANNEL LOGIC

ENTRY	OPCODE	PARM	PARM	PARM	COMMENT

```
======== ======== ======== ======== ======== ==========================
         START    ALL      NO
         GIVEN    MSG
         ASSIGN   MSG      CNODE              SET INTERNAL NODE CURRENT
                  $CNODE
         ASSIGN   MSG      TNODE              GET DESTINATION NODE
                  TO_NODE
         ASSIGN   $NXTNODE TO_NODE            SET NEXT NODE TO DESTN
                  NXT_NODE
         ASSIGN   $CHANNEL TO_NODE            GET CHANNEL TO NEXT NODE
                  CHANNEL
         ALLOC    CHANNEL  1         ALL
                  $PRIORTY
         ASSIGN   CHANNEL  RATE               WHAT IS CHANNEL RATE?
                  VSPEED
         ASSIGN   MSG      LENGTH             MESSAGE LENGTH
                  VLENGTH
         EVAL     VM_OVHD                      CALCULATE TRANSFER TIME
                  VSPEED   *       VLENGTH
         COMPARE  VSPEED             NE
                  167                AHD
         ASSIGN   0
                  VM_OVHD
AHD      ENTRY
         XFER_OH  CONSTANT VM_OVHD            DELAY DUE TO TRANSFER TIME
                  MSECONDS RESUME
         ASSIGN   NXT_NODE                    MSG RESIDES IN NEXT NODE
                  MSG      CNODE
         ASSIGN   NXT_NODE                    SET INTERNAL NODE REGISTER
                  $CNODE
         DEAL OC  CHANNEL  1                  FREE UP CHANNEL AFTER XFER
         CALL     NODEPROC WAIT     0         ROUTE MESSAGE TO NEXT NODE
         GIVEN    MSG
         END
```

LOCAL VARIABLES OF PROCESS CHANPROC

1 MSG (I)	2 TO_NODE	3 NXT_NODE	4 CHANNEL	
5 VSPEED	6 VLENGTH	7 VM_OVHD	8 XFER_OH	(A)
9 NODEPROC (P)				

PROCESS MNEMONIC	DESCRIPTION
DESTPROC	PROCESSING AT DESTINATION OF MESSAGE

ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
	START	ALL	NO		

```
PAGE   11
          GIVEN    MSG
          ASSIGN   MSG       CNODE              CURRENT NODE
                   C_NODE
          COMPARE  MSG       TYPE      EQ       IF RESPONSE, DESTROY
                   $RESP               DESTROY
          ALLOC    C_NODE    1         ALL
                   $PRIORTY
          ASSIGN   MSG       RPROC              EXECUTE THE CALLED PROCESS
                   PROCESS
          ASSIGN   MSG       RPROCPRI           SET PRIORITY FOR REQ PROC
                   PRIORITY
          CALL     PROCESS   WAIT      PRIORITY WAIT UNTIL COMPLETE
          GIVEN    MSG
          RETURN   MSG
          DEALLOC  C_NODE    1                  DEALLOCATE CURRENT NODE
          COMPARE  MSG       TYPE      EQ       NO RESPONSE REQ -> DESTROY
                   $REQNORE            DESTROY
          ASSIGN   $RESP                        CHANGE MSG RESPONSE TYPE
                   MSG       TYPE
          ASSIGN   MSG       FNODE              SWITCH FROM AND TO NODES
                   MSG       TNODE
          ASSIGN   MSG       CNODE              CURRENT NODE IS FROM NODE
                   MSG       FNODE
          CALL     CHANPROC  WAIT      0        RETURN MESSAGE TO ORIGIN
          GIVEN    MSG
          BRANCH   END       100
DESTROY   ENTRY                                 TERMINATE MESSAGE AT DEST
          DESTROY  MSG                          TERMINATE MSG
END       ENTRY
          END

LOCAL VARIABLES OF PROCESS DESTPROC
=====================================================================
    1 MSG       (I)    2 C_NODE           3 PROCESS   (X)    4 PRIORITY
    5 CHANPROC  (P)
PROCESS
MNEMONIC            DESCRIPTION
======== ======== ================================================
MRS                 GENERATE A PROCESS REQUEST MESSAGE AND INITIATE I/O


ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ========================
         START    ALL      NO
         GIVEN    PROCESS  PRIORITY MSG_TYPE
                  MSG_LNTH TO_NODE  MSG
         CREATE   MSG                        CREATE MESSAGE
         ASSIGN   MSG_LNTH                   SET MESSAGE LENGTH
                  MSG      LENGTH
```

```
PAGE   12
          ASSIGN    PROCESS                          SET PROCESS
                    MSG       RPROC
          ASSIGN    PRIORITY                         SET PRIORITY
                    MSG       RPROCPRI
          ASSIGN    TO_NODE                          SET DESTINATION
                    MSG       TNODE
          ASSIGN    MSG_TYPE                         SET MESSAGE TYPE
                    MSG       TYPE
          CALL      NODEPROC  WAIT      0            EXECUTIVE SERVICING OF MSG
          GIVEN     MSG
          END

LOCAL VARIABLES OF PROCESS MRS
=============================================================================
    1 PROCESS    (X)     2 PRIORITY          3 MSG_TYPE          4 MSG_LNTH
    5 TO_NODE            6 MSG        (I)    7 NODEPROC   (P)
PROCESS
MNEMONIC            DESCRIPTION
======== ======== ==================================================
NODEPROC            NODAL PROCESSING AND ROUTING


ENTRY     OPCODE    PARM      PARM      PARM      COMMENT
========  ========  ========  ========  ========  ==========================
          START     ALL       NO
          GIVEN     MSG
          ASSIGN    MSG       CNODE               INDICATE CURRENT NODE
                    C_NODE
          ASSIGN    C_NODE    M_ROUTE             PROCESSING RATE OF NODE
                    RT_OVHD
          ASSIGN    MSG       LENGTH              GET MESSAGE LENGTH
                    MSG_LNTH
          EVAL      OVERHEAD                      COMPUTE PROCESSING DELAY
                    MSG_LNTH*RT_OVHD
          ASSIGN    OVERHEAD                      SAMPLE OVERHEAD FOR PLOT
                    V_ROUTER
          ALLOC     C_NODE    1         ALL
                    $PRIORTY
          ROUTE_OH  CONSTANT  OVERHEAD            DELAY FOR ROUTING
                    MSECONDS  RESUME
          DEALLOC   C_NODE    1                   RELEASE C_NODE TO OTHERS
          COMPARE   MSG       CNODE     EQ        IS MSG AT DESTINATION?
                    MSG       TNODE     CONTROL
          CALL      CHANPROC  WAIT      0         FORWARD MSG TO CHANNEL
          GIVEN     MSG
          BRANCH    END       100
CONTROL   ENTRY                                   MESSAGE AT DESTINATION
          CALL      DESTPROC  WAIT      0         CONTEXT SWITCH MESSAGE
          GIVEN     MSG
```

```
PAGE   13
END       ENTRY
          END

LOCAL VARIABLES OF PROCESS NODEPROC
=====================================================================
    1 MSG        (I)     2 C_NODE            3 RT_OVHD           4 MSG_LNTH
    5 OVERHEAD           6 ROUTE_OH   (A)    7 CHANPROC   (P)    8 DESTPROC   (P)


GLOBAL VARIABLES OF PROCESS NODEPROC
=====================================================================
    1 V_ROUTER
PROCESS
MNEMONIC          DESCRIPTION
======== ======== ===================================================
TO1


ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ========================
         START    ALL      NO
         GIVEN    MSG
         RETURN   MSG
         END

LOCAL VARIABLES OF PROCESS TO1
=====================================================================
    1 MSG        (I)
PROCESS
MNEMONIC          DESCRIPTION
======== ======== ===================================================
TO2


ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ========================
         START    ALL      NO
         GIVEN    MSG
         RETURN   MSG
         END

LOCAL VARIABLES OF PROCESS TO2
=====================================================================
    1 MSG        (I)
PROCESS
MNEMONIC          DESCRIPTION
======== ======== ===================================================
TO3
```

ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
	START	ALL	NO		
	GIVEN	MSG			
	RETURN	MSG			
	END				

LOCAL VARIABLES OF PROCESS T03

1 MSG (I)

PROCESS MNEMONIC	DESCRIPTION
T04	

ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
	START	ALL	NO		
	GIVEN	MSG			
	RETURN	MSG			
	END				

LOCAL VARIABLES OF PROCESS T04

1 MSG (I)

PROCESS MNEMONIC	DESCRIPTION
T05	

ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
	START	ALL	NO		
	GIVEN	MSG			
	RETURN	MSG			
	END				

LOCAL VARIABLES OF PROCESS T05

1 MSG (I)

PROCESS MNEMONIC	DESCRIPTION
T06	

```
ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ==========================
         START    ALL      NO
         GIVEN    MSG
         RETURN   MSG
         END

LOCAL VARIABLES OF PROCESS TO6
================================================================================
    1 MSG        (I)
PROCESS
MNEMONIC           DESCRIPTION
======== ======== ================================================
TOHOST1


ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ==========================
         START    ALL      NO
         CALL     MRS      WAIT     0
         GIVEN    TO1      PRI      $REQNORE
                  36       H1       MSG
         END

LOCAL VARIABLES OF PROCESS TOHOST1
================================================================================
    1 MRS        (P)    2 TO1        (P)    3 PRI                4 H1         (R)
    5 MSG        (I)
PROCESS
MNEMONIC           DESCRIPTION
======== ======== ================================================
TOHOST2


ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ==========================
         START    ALL      NO
         CALL     MRS      WAIT     0
         GIVEN    TO2      PRI      $REQNORE
                  36       H2       MSG
         END

LOCAL VARIABLES OF PROCESS TOHOST2
================================================================================
    1 MRS        (P)    2 TO2        (P)    3 PRI                4 H2         (R)
    5 MSG        (I)
PROCESS
MNEMONIC           DESCRIPTION
======== ======== ================================================
```

TOHOST3

ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
	START	ALL	NO		
	CALL	MRS	WAIT	0	
	GIVEN	T03	PRI	$REQNORE	
		36	H3	MSG	
	END				

LOCAL VARIABLES OF PROCESS TOHOST3

1	MRS	(P)	2 T03	(P)	3 PRI	4 H3		(R)
5	MSG	(I)						

PROCESS

MNEMONIC	DESCRIPTION
TOHOST4	

ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
	START	ALL	NO		
	CALL	MRS	WAIT	0	
	GIVEN	T04	PRI	$REQNORE	
		36	H4	MSG	
	END				

LOCAL VARIABLES OF PROCESS TOHOST4

1	MRS	(P)	2 T04	(P)	3 PRI	4 H4		(R)
5	MSG	(I)						

PROCESS

MNEMONIC	DESCRIPTION
TOHOST5	

ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
	START	ALL	NO		
	CALL	MRS	WAIT	0	
	GIVEN	T05	PRI	$REQNORE	
		36	H5	MSG	
	END				

LOCAL VARIABLES OF PROCESS TOHOST5

```
PAGE   17
    1 MRS        (P)     2 TO5        (P)     3 PRI                4 H5         (R)
    5 MSG        (I)
PROCESS
MNEMONIC            DESCRIPTION
-------- -------- ------------------------------------------------
TOHOST6

ENTRY     OPCODE    PARM      PARM      PARM      COMMENT
--------- --------- --------- --------- --------- --------------------------
          START     ALL       NO
          CALL      MRS       WAIT      0
          GIVEN     TO8       PRI       $REQNORE
                    36        H8        MSG
          END

LOCAL VARIABLES OF PROCESS TOHOST6
-----------------------------------------------------------------------------
    1 MRS        (P)     2 TO8        (P)     3 PRI                4 H8         (R)
    5 MSG        (I)
PROCESS
MNEMONIC            DESCRIPTION
-------- -------- ------------------------------------------------------
TRACE               TURN ON TRACE OUTPUT

ENTRY     OPCODE    PARM      PARM      PARM      COMMENT
--------- --------- --------- --------- --------- --------------------------
          START     ALL       NO
          TRACE     ON
          TRACE     ON
          END

LOAD DEFINITION

LOAD
MNEMONIC            DESCRIPTION
-------- -------- ------------------------------------------------------
LOADH1              THIS IS THE LOAD FOR HOST 1
          LOAD      NODES
          -------- -------- -------- --------
          H1

          PROCESS             SCHEDULE
          MNEMONIC  MAX #     METHOD    MEAN      DELTA     UNITS     PRIORITY
          --------  --------  --------  --------  --------  --------  --------
          TOHOST2   20        EXPONENT  1370      0         MSECONDS  0
          TOHOST3   20        EXPONENT  1370      0         MSECONDS  0
```

TOHOST4	20	EXPONENT	1370	0	MSECONDS 0
TOHOST5	20	EXPONENT	1370	0	MSECONDS 0
TOHOST6	20	EXPONENT	1370	0	MSECONDS 0

LOAD MNEMONIC	DESCRIPTION
LOADH2	THIS IS THE LOAD FOR HOST 2

LOAD	NODES
H2	

PROCESS MNEMONIC	MAX #	SCHEDULE METHOD	MEAN	DELTA	UNITS	PRIORITY
TOHOST1	20	EXPONENT	1370	0	MSECONDS	0
TOHOST3	20	EXPONENT	1370	0	MSECONDS	0
TOHOST4	20	EXPONENT	1370	0	MSECONDS	0
TOHOST5	20	EXPONENT	1370	0	MSECONDS	0
TOHOST8	20	EXPONENT	1370	0	MSECONDS	0

LOAD MNEMONIC	DESCRIPTION
LOADH3	THIS IS THE LOAD FOR HOST 3

LOAD	NODES
H3	

PROCESS MNEMONIC	MAX #	SCHEDULE METHOD	MEAN	DELTA	UNITS	PRIORITY
TOHOST1	20	EXPONENT	1370	0	MSECONDS	0
TOHOST2	20	EXPONENT	1370	0	MSECONDS	0
TOHOST4	20	EXPONENT	1370	0	MSECONDS	0
TOHOST5	20	EXPONENT	1370	0	MSECONDS	0
TOHOST6	20	EXPONENT	1370	0	MSECONDS	0

LOAD MNEMONIC	DESCRIPTION
LOADH4	THIS IS THE LOAD FOR HOST 4

LOAD	NODES
H4	

PROCESS MNEMONIC	MAX #	SCHEDULE METHOD	MEAN	DELTA	UNITS	PRIORITY

TOHOST1	20	EXPONENT	1370	0	MSECONDS 0
TOHOST2	20	EXPONENT	1370	0	MSECONDS 0
TOHOST3	20	EXPONENT	1370	0	MSECONDS 0
TOHOST5	20	EXPONENT	1370	0	MSECONDS 0
TOHOST6	20	EXPONENT	1370	0	MSECONDS 0

LOAD

MNEMONIC	DESCRIPTION
LOADH5	THIS IS THE LOAD FOR HOST 5

LOAD	NODES
H5	

PROCESS MNEMONIC	MAX #	SCHEDULE METHOD	MEAN	DELTA	UNITS	PRIORITY
TOHOST1	20	EXPONENT	1370	0	MSECONDS	0
TOHOST2	20	EXPONENT	1370	0	MSECONDS	0
TOHOST3	20	EXPONENT	1370	0	MSECONDS	0
TOHOST4	20	EXPONENT	1370	0	MSECONDS	0
TOHOST6	20	EXPONENT	1370	0	MSECONDS	0

LOAD

MNEMONIC	DESCRIPTION
LOADH6	THIS IS THE LOAD FOR HOST 6

LOAD	NODES
H6	

PROCESS MNEMONIC	MAX #	SCHEDULE METHOD	MEAN	DELTA	UNITS	PRIORITY
TOHOST1	20	EXPONENT	1370	0	MSECONDS	0
TOHOST2	20	EXPONENT	1370	0	MSECONDS	0
TOHOST3	20	EXPONENT	1370	0	MSECONDS	0
TOHOST4	20	EXPONENT	1370	0	MSECONDS	0
TOHOST5	20	EXPONENT	1370	0	MSECONDS	0

SCENARIO DEFINITION ...

SCENARIO

MNEMONIC	DESCRIPTION
PSCEN	

PERIOD LENGTH	PERIOD UNITS	OUTPUT UNITS

15000 MSECONDS MSECONDS

PERIOD MNEMONIC | PERIOD MNEMONIC | PERIOD MNEMONIC | PERIOD MNEMONIC | PERIOD MNEMONIC | PERIOD MNEMONIC | PERIOD MNEMONIC

PER1

TRIGGER MNEMONIC	TIME TO SCHEDULE	SCHEDULE UNITS	SCHEDULE PRIORITY	TRIGGER MNEMONIC	TIME TO SCHEDULE	SCHEDULE UNITS	SCHEDULE PRIORITY
LOADH1	0	MSECONDS	0	LOADH2	0	MSECONDS	0
LOADH3	0	MSECONDS	0	LOADH4	0	MSECONDS	0
LOADH5	0	MSECONDS	0	LOADH6	0	MSECONDS	0

0 ERRORS WERE DETECTED DURING MODEL INITIALIZATION

04/21/1987 10 27 49

TESTDB1 - RUN1

TEST THE USE OF VARIOUS AUT COMMANDS

SIMULATION TIME = 15000.0000 MSECONDS

CONSTANT REPORT

CONSTANT	CURRENT VALUE
SECS_CHR	167.000

[illegible] 15000.00000 MSECONDS

[illegible]

[illegible] VARIABLES ...

VARIABLE	TOTAL SAMPLES	VALUE CURRENT	VALUE MEAN	VALUE STD DEV	VALUE MINIMUM	VALUE MAXIMUM
[illegible]ER	779	0.	0.	0.	0.	0.

NON NUMERIC VARIABLES...

VARIABLE	CURRENT TYPE	CURRENT VALUE

PAGE 24

SIMULATION TIME = 15000.00000 MSECONDS

ITEM REPORT

ITEM NAME	NUMBER CREATED	NUMBER DESTR'D	TIME IN SYSTEM MINIMUM...	MAXIMUM...	AVERAGE...	STD DEV...
MSG	342	16	1008.00	12186.82	5741.02	3370.13

SIMULATION TIME = 15000.00000 MSECONDS

RESOURCE REPORT

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
B1						
# IDLE		1.000	1.000	0.	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	68					
OUT OF BUSY	68					
# BUSY		0.	0.	0.	0.	1.000
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	68					
OUT OF WAIT	68					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED TO PROCESSES: NONE

PROCESSES CURRENTLY WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
B1B2						
# IDLE		0.	0.002	0.047	0.	1.000
REQUEST TIME			6220.602	4006.191	0.	12226.422
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	8					
OUT OF BUSY	7					
# BUSY		1.000	0.998	0.047	0.	1.000
BUSY TIME			2016.000	+1.831E-04	2016.000	2016.000
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	65					
OUT OF WAIT	8					
# WAITING		57.000	25.365	16.261	0.	57.000

WAIT TIME	6220.602	4006.191	0.	12226.422

CURRENTLY ALLOCATED TO PROCESSES: CHANPROC

PROCESSES CURRENTLY WAITING:

CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC			

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
B2						
# IDLE		1.000	1.000	0.	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	65					
OUT OF BUSY	65					
# BUSY		0.	0.	0.	0.	1.000
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	65					
OUT OF WAIT	65					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED TO PROCESSES: NONE

PROCESSES CURRENTLY WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
B2B3						

# IDLE		0.	0.015	0.120	0.	1.000
REQUEST TIME			5873.100	3565.980	0.	11658.857
HOLD TIME	0		0.	3.	0.	0.
INTO BUSY	15					
OUT OF BUSY	14					
# BUSY		1.000	0.985	0.120	0.	1.000
BUSY TIME			1008.000	+1.449E-04	1008.000	1008.000
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	61					
OUT OF WAIT	15					
# WAITING		46.000	24.736	12.822	0.	46.000
WAIT TIME			5873.100	3565.980	0.	11658.857

CURRENTLY ALLOCATED
TO PROCESSES: CHANPROC

PROCESSES CURRENTLY
WAITING:

CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC				

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
83						
# IDLE		1.000	1.000	0.	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	75					
OUT OF BUSY	75					
# BUSY		0.	0.	0.	0.	1.000
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	75					
OUT OF WAIT	75					
# WAITING		0.	0.	0.	0.	1.000

WAIT TIME		0.	0.	0.	0.

CURRENTLY ALLOCATED TO PROCESSES: NONE

PROCESSES CURRENTLY WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
B3B4						
# IDLE		0.	0.013	0.112	0.	1.000
REQUEST TIME			5975.535	3737.128	0.	12104.579
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	15					
OUT OF BUSY	14					
# BUSY		1.000	0.987	0.112	0.	1.000
BUSY TIME			1008.000	+1.449E-04	1008.000	1008.000
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	74					
OUT OF WAIT	15					
# WAITING		59.000	30.464	14.473	0.	59.000
WAIT TIME			5975.535	3737.128	0.	12104.579

CURRENTLY ALLOCATED TO PROCESSES: CHANPROC

PROCESSES CURRENTLY WAITING:

CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
B4						

# IDLE		1.000	1.000	0.	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	73					
OUT OF BUSY	73					
# BUSY		0.	0.	0.	0.	1.000
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	73					
OUT OF WAIT	73					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED TO PROCESSES: NONE

PROCESSES CURRENTLY WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
8485						
# IDLE		0.	0.011	0.105	0.	1.000
REQUEST TIME			5602.919	3556.911	0.	11222.675
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	15					
OUT OF BUSY	14					
# BUSY		1.000	0.989	0.105	0.	1.000
BUSY TIME			1008.000	+0.724E-04	1008.000	1008.000
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	70					
OUT OF WAIT	15					
# WAITING		55.000	29.868	16.551	0.	55.000
WAIT TIME			5602.919	3556.911	0.	11222.675

CURRENTLY ALLOCATED TO PROCESSES: CHANPROC

PROCESSES CURRENTLY WAITING: CHANPROC CHANPROC CHANPROC CHANPROC CHANPROC
CHANPROC CHANPROC CHANPROC CHANPROC CHANPROC
CHANPROC CHANPROC CHANPROC CHANPROC CHANPROC

CHANPROC CHANPROC CHANPROC CHANPROC CHANPROC
CHANPROC CHANPROC CHANPROC CHANPROC CHANPROC
CHANPROC CHANPROC CHANPROC CHANPROC CHANPROC
CHANPROC CHANPROC CHANPROC CHANPROC CHANPROC
CHANPROC CHANPROC CHANPROC CHANPROC CHANPROC
CHANPROC CHANPROC CHANPROC CHANPROC CHANPROC
CHANPROC CHANPROC CHANPROC CHANPROC CHANPROC
CHANPROC CHANPROC CHANPROC CHANPROC CHANPROC

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
B5						
# IDLE		1.000	1.000	0.	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	58					
OUT OF BUSY	58					
# BUSY		0.	0.	0.	0.	1.000
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	58					
OUT OF WAIT	58					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
B5B6						
# IDLE		0.	0.005	0.069	0.	1.000
REQUEST TIME			4875.373	3066.636	0.	9049.678
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	15					
OUT OF BUSY	14					
# BUSY		1.000	0.995	0.069	0.	1.000
BUSY TIME			1008.000	+3.192E-05	1008.000	1008.000

# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	57					
OUT OF WAIT	15					
# WAITING		42.000	21.230	14.447	0.	42.000
WAIT TIME			4875.373	3066.636	0.	9049.678

CURRENTLY ALLOCATED TO PROCESSES: CHANPROC

PROCESSES CURRENTLY WAITING:

CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC			

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
B6						
# IDLE		1.000	1.000	0.	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	80					
OUT OF BUSY	80					
# BUSY		0.	0.	0.	0.	1.000
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	80					
OUT OF WAIT	80					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED TO PROCESSES: NONE

PROCESSES CURRENTLY WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...

B681						
# IDLE		0.	0.017	0.129	0.	1.000
REQUEST TIME			5484.301	3198.891	0.	10747.311
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	15					
OUT OF BUSY	14					
# BUSY		1.000	0.983	0.129	0.	1.000
BUSY TIME			1008.000	+0.730E-04	1008.000	1008.000
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	78					
OUT OF WAIT	15					
# WAITING		61.000	28.518	18.591	0.	61.000
WAIT TIME			5484.301	3198.891	0.	10747.311

CURRENTLY ALLOCATED TO PROCESSES: CHANPROC

PROCESSES CURRENTLY WAITING:

CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC				

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
BUFFER						
# IDLE		1.000	1.000	0.	1.000	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	0					
OUT OF BUSY	0					
# BUSY		0.	0.	0.	0.	0.
BUSY TIME			0.	0.	0.	0.

# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	0					
OUT OF WAIT	0					
# WAITING		0.	0.	0.	0.	0.
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
H1						
# IDLE		1.000	1.000	0.	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	60					
OUT OF BUSY	60					
# BUSY		0.	0.	0.	0.	1.000
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	60					
OUT OF WAIT	60					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
H2						
# IDLE		1.000	1.000	0.	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	68					
OUT OF BUSY	68					

# BUSY		0.	0.	0.	0.	1.000
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	66					
OUT OF WAIT	66					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
H3						
# IDLE		1.000	1.000	0.	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	63					
OUT OF BUSY	63					
# BUSY		0.	0.	0.	0.	1.000
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	63					
OUT OF WAIT	63					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
H4						
# IDLE		1.000	1.000	0.	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.

INTO BUSY	65					
OUT OF BUSY	65					
# BUSY		0.	0.	0.	0.	1.000
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	65					
OUT OF WAIT	65					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
H5						
# IDLE		1.000	1.000	0.	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	46					
OUT OF BUSY	46					
# BUSY		0.	0.	0.	0.	1.000
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	46					
OUT OF WAIT	46					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
H6						

		1.000	1.000	0.	0.	1.000
			0.	0.	0.	0.
	0		0.	0.	0.	0.
	74					
	74					
		0.	0.	0.	0.	1.000
			0.	0.	0.	0.
		0.	0.	0.	0.	0.
	74					
	74					
		0.	0.	0.	0.	1.000
			0.	0.	0.	0.

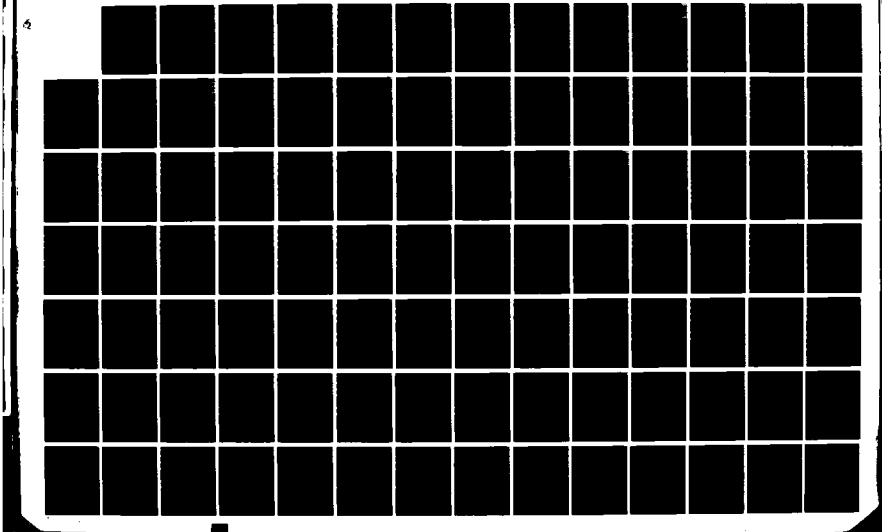
NONE

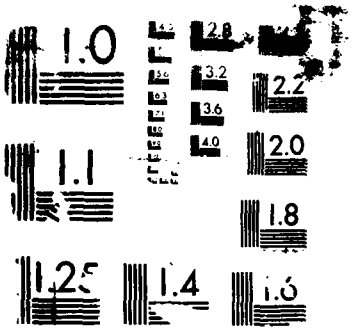
NONE

NUMBER	CURRENT	MEAN	STD DEV	MINIMUM	MAXIMUM
	1.000	1.000	0.	0.	1.000
		0.	0.	0.	0.
0		0.	0.	0.	0.
4					
	0	0.	0.	0.	1.000
		0.	0.	0.	0.
	0	0.	0.	0.	0.
	0	0.	0.	0.	1.000
		0	0.	0.	0.

AD-A189 146 AUTOMATED INTERACTIVE SIMULATION MODEL (AISIM) VAX VERSION 50 ACCEPTANCE..(U) HUGHES AIRCRAFT CO FULLERTON CA GROUND SYSTEMS GROUP V ALLERTON ET AL. 29 APR 87 2/4

UNCLASSIFIED 1854474-2 ESD-TR-87-226 F19628-86-C-0070 F/G 12/5 NL





RESOLUTION TEST CHART

RESOURCE	NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
HB1_B						
# IDLE		1.000	1.000	0.	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	3					
OUT OF BUSY	3					
# BUSY		0.	0.	0.	0.	1.000
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	3					
OUT OF WAIT	3					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
HB2_A						
# IDLE		1.000	1.000	0.	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	58					
OUT OF BUSY	58					
# BUSY		0.	0.	0.	0.	1.000
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	58					
OUT OF WAIT	58					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY

WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
HB2_B						
# IDLE		1.000	1.000	0.	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	4					
OUT OF BUSY	4					
# BUSY		0.	0.	0.	0.	1.000
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	4					
OUT OF WAIT	4					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED TO PROCESSES: NONE

PROCESSES CURRENTLY WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
HB3_A						
# IDLE		1.000	1.000	0.	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	61					
OUT OF BUSY	61					
# BUSY		0.	0.	0.	0.	1.000
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	61					
OUT OF WAIT	61					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED

TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
HB3_B						
# IDLE		1.000	1.000	0.	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	1					
OUT OF BUSY	1					
# BUSY		0.	0.	0.	0.	1.000
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	1					
OUT OF WAIT	1					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
HB4_A						
# IDLE		1.000	1.000	0.	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	59					
OUT OF BUSY	59					
# BUSY		0.	0.	0.	0.	1.000
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	59					
OUT OF WAIT	59					
# WAITING		0.	0.	0.	0.	1.000

WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
HB4_B						
# IDLE		1.000	1.000	0.	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	3					
OUT OF BUSY	3					
# BUSY		0.	0.	0.	0.	1.000
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	3					
OUT OF WAIT	3					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
HB5_A						
# IDLE		1.000	1.000	0.	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	44					
OUT OF BUSY	44					
# BUSY		0.	0.	0.	0.	1.000
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.

INTO WAIT	44					
OUT OF WAIT	44					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED TO PROCESSES: NONE

PROCESSES CURRENTLY WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM..	MAXIMUM...
HB5_B						
# IDLE		1.000	1.000	0.	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	1					
OUT OF BUSY	1					
# BUSY		0.	0.	0.	0.	1.000
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	1					
OUT OF WAIT	1					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED TO PROCESSES: NONE

PROCESSES CURRENTLY WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
HB6_A						
# IDLE		1.000	1.000	0.	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	66					
OUT OF BUSY	66					
# BUSY		0.	0.	0.	0.	1.000
BUSY TIME			0.	0.	0.	0.

# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	66					
OUT OF WAIT	66					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
HB6_8						
# IDLE		1.000	1.000	0.	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	4					
OUT OF BUSY	4					
# BUSY		0.	0.	0.	0.	1.000
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	4					
OUT OF WAIT	4					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

SIMULATION TIME = 15000.00000 MSECONDS

ACTION REPORT

ACTION	TOTAL SAMPLES	MEAN.....	STD DEV...	MINIMUM..	MAXIMUM...	% TIME OF TOTAL.
CS_OH						
USEFUL TIME	0	0.	0.	0.	0.	0.
DELAY TIME	0	0.	0.	0.	0.	
WASTED TIME	0	0.	0.	0.	0.	

ACTION	TOTAL SAMPLES	MEAN.....	STD DEV...	MINIMUM..	MAXIMUM...	% TIME OF TOTAL.
ROUTE_OH						
USEFUL TIME	777	0.	0.	0.	0.	0.
DELAY TIME	777	0.	0.	0.	0.	
WASTED TIME	0	0.	0.	0.	0.	

ACTION	TOTAL SAMPLES	MEAN.....	STD DEV...	MINIMUM..	MAXIMUM...	% TIME OF TOTAL.
XFER_OH						
USEFUL TIME	435	194.648	437.057	0.	2016.000	564.480
DELAY TIME	435	0.	0.	0.	0.	
WASTED TIME	0	0.	0.	0.	0.	

SIMULATION TIME = 15000.00000 MSECONDS

PROCESS REPORT

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
CHANPROC						
TOTAL	60	198920.311	3978.406	3855.447	0.	12186.823
PROCESS WAIT	60	107063.942	2141.279	3453.351	0.	12186.823
RESOURCE WAIT	441	466933.229	1058.806	2676.740	0.	12226.422

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
761	0	761	60	711	0

ITEM	CREATED	RECEIVED	SENT	DESTR'D
MSG	0	0	0	0

ITEM	PROCESS HOLDING TIME # SMPLS	MEAN.....	MINIMUM..	MAXIMUM...	STD DEV...
MSG	435	1114.01	0.	12711.27	2771.15

PROCESS	DESCRIPTION
CHANPROC	FULL AND HALF DUPLEX CHANNEL LOGIC

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
761		START	ALL	NO		
761		GIVEN	MSG			
761		ASSIGN	MSG	CNODE		SET INTERNAL NODE CURRENT
761			$CNODE			
761		ASSIGN	MSG	TNODE		GET DESTINATION NODE
761			TO_NODE			
761		ASSIGN	$NXTNODE	TO_NODE		SET NEXT NODE TO DESTN
761			NXT_NODE			
761		ASSIGN	$CHANNEL	TO_NODE		GET CHANNEL TO NEXT NODE
761			CHANNEL			
761		ALLOC	CHANNEL	1	ALL	
761			$PRIORTY			
441		ASSIGN	CHANNEL	RATE		WHAT IS CHANNEL RATE?
441			VSPEED			
441		ASSIGN	MSG	LENGTH		MESSAGE LENGTH
441			VLENGTH			

```
441                 VSPEED   *      VLENGTH
441          COMPARE  VSPEED            NE
441                   167               AHD
358          ASSIGN   0
358                   VM_OVHD
441 AHD      ENTRY
441          XFER_OH  CONSTANT VM_OVHD          DELAY DUE TO TRANSFER TIME
441                   MSECONDS RESUME
435          ASSIGN   NXT_NODE                  MSG RESIDES IN NEXT NODE
435                   MSG      CNODE
435          ASSIGN   NXT_NODE                  SET INTERNAL NODE REGISTER
435                   $CNODE
435          DEALLOC  CHANNEL  1                FREE UP CHANNEL AFTER XFER
435          CALL     NODEPROC WAIT     0       ROUTE MESSAGE TO NEXT NODE
435          GIVEN    MSG
 50          END
```

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
DESTPROC						
TOTAL	16	0.	0.	0.	0.	0.
PROCESS WAIT	16	0.	0.	0.	0.	0.
RESOURCE WAIT	16	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
16	0	16	16	0	0

ITEM	CREATED	RECEIVED	SENT	DESTR'D
MSG	0	0	0	16

ITEM	PROCESS # SMPLS	HOLDING MEAN.....	TIME MINIMUM..	MAXIMUM...	STD DEV...
MSG	32	0.	0.	0.	0.

PROCESS	DESCRIPTION
DESTPROC	PROCESSING AT DESTINATION OF MESSAGE

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
16		START	ALL	NO		
16		GIVEN	MSG			
16		ASSIGN	MSG	CNODE		CURRENT NODE

```
PAGE   48
    16                  C_NODE
    16          COMPARE MSG       TYPE      EQ          IF RESPONSE, DESTROY
    16                  $RESP               DESTROY
    16          ALLOC   C_NODE    1         ALL
    16                  $PRIORTY
    16          ASSIGN  MSG       RPROC               EXECUTE THE CALLED PROCESS
    16                  PROCESS
    16          ASSIGN  MSG       RPROCPRI            SET PRIORITY FOR REQ PROC
    16                  PRIORITY
    16          CALL    PROCESS   WAIT      PRIORITY  WAIT UNTIL COMPLETE
    16          GIVEN   MSG
    16          RETURN  MSG
    16          DEALLOC C_NODE    1                   DEALLOCATE CURRENT NODE
    16          COMPARE MSG       TYPE      EQ        NO RESPONSE REQ -> DESTROY
    16                  $REQNORE            DESTROY
     0          ASSIGN  $RESP                         CHANGE MSG RESPONSE TYPE
     0                  MSG       TYPE
     0          ASSIGN  MSG       FNODE               SWITCH FROM AND TO NODES
     0                  MSG       TNODE
     0          ASSIGN  MSG       CNODE               CURRENT NODE IS FROM NODE
     0                  MSG       FNODE
     0          CALL    CHANPROC  WAIT      0         RETURN MESSAGE TO ORIGIN
     0          GIVEN   MSG
     0          BRANCH  END       100
    16 DESTROY  ENTRY                                 TERMINATE MESSAGE AT DEST
    16          DESTROY MSG                           TERMINATE MSG
    16 END      ENTRY
    16          END
```

A-38

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
MRS						
TOTAL	16	91856.370	5741.023	3370.131	1008.000	12186.823
PROCESS WAIT	16	91856.370	5741.023	3370.131	1008.000	12186.823
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
342	0	342	16	326	0

ITEM	CREATED	RECEIVED	SENT	DESTR'D
MSG	342	0	0	0

ITEM	PROCESS HOLDING TIME # SMPLS	MEAN.....	MINIMUM..	MAXIMUM...	STD DEV...

```
        MSG            342        0.          0.          0.          0.

PROCESS            DESCRIPTION
======== ======== ============================================================
MRS                GENERATE A PROCESS REQUEST MESSAGE AND INITIATE I/O

COUNT ENTRY     OPCODE    PARM      PARM      PARM      COMMENT
===== ======== ======== ======== ======== ======== ============================
  342           START     ALL       NO
  342           GIVEN     PROCESS   PRIORITY MSG_TYPE
  342                     MSG_LNTH  TO_NODE  MSG
  342           CREATE    MSG                         CREATE MESSAGE
  342           ASSIGN    MSG_LNTH                    SET MESSAGE LENGTH
  342                     MSG       LENGTH
  342           ASSIGN    PROCESS                     SET PROCESS
  342                     MSG       RPROC
  342           ASSIGN    PRIORITY                    SET PRIORITY
  342                     MSG       RPROCPRI
  342           ASSIGN    TO_NODE                     SET DESTINATION
  342                     MSG       TNODE
  342           ASSIGN    MSG_TYPE                    SET MESSAGE TYPE
  342                     MSG       TYPE
  342           CALL      NODEPROC  WAIT      0       EXECUTIVE SERVICING OF MSG
  342           GIVEN     MSG
   16           END

                 TOTAL
PROCESS          SAMPLES.  SUM.......  MEAN......  STD DEV...  MINIMUM...  MAXIMUM...
================ ======== ========== ========== ========== ========== ==========
NODEPROC
          TOTAL        66 198920.311   3013.944   3764.014         0.   12186.823
   PROCESS WAIT        66 198920.311   3013.944   3764.014         0.   12186.823
  RESOURCE WAIT       777        0.         0.         0.         0.         0.

       TOTAL #   # AUTO    # CALL    # OF      # NOT     # TIMES
       SCHEDULE  SCHEDULE  SCHEDULE  COMPLETE  COMPLETE  SUSPEND.
       ========  ========  ========  ========  ========  ========
            777         0       777        66       711         0

        ITEM      CREATED   RECEIVED  SENT      DESTR'D
        ========  ========  ========  ========  ========
        MSG              0         0         0         0

                   PROCESS  HOLDING  TIME
        ITEM       # SMPLS  MEAN...... MINIMUM..  MAXIMUM... STD DEV...
        ========  ========  ========== ========== ========== ==========
        MSG            777         0.         0.         0.         0.

PROCESS            DESCRIPTION
```

NODEPROC NODAL PROCESSING AND ROUTING

```
COUNT ENTRY     OPCODE    PARM      PARM      PARM      COMMENT
===== ========= ========= ========= ========= ========= ============================
  777           START     ALL       NO
  777           GIVEN     MSG
  777           ASSIGN    MSG       CNODE               INDICATE CURRENT NODE
  777                     C_NODE
  777           ASSIGN    C_NODE    M_ROUTE             PROCESSING RATE OF NODE
  777                     RT_OVHD
  777           ASSIGN    MSG       LENGTH              GET MESSAGE LENGTH
  777                     MSG_LNTH
  777           EVAL      OVERHEAD                      COMPUTE PROCESSING DELAY
  777                     MSG_LNTH*RT_OVHD
  777           ASSIGN    OVERHEAD                      SAMPLE OVERHEAD FOR PLOT
  777                     V_ROUTER
  777           ALLOC     C_NODE    1         ALL
  777                     $PRIORTY
  777           ROUTE_OH  CONSTANT  OVERHEAD            DELAY FOR ROUTING
  777                     MSECONDS  RESUME
  777           DEALLOC   C_NODE    1                   RELEASE C_NODE TO OTHERS
  777           COMPARE   MSG       CNODE     EQ        IS MSG AT DESTINATION?
  777                     MSG       TNODE     CONTROL
  761           CALL      CHANPROC  WAIT      0         FORWARD MSG TO CHANNEL
  761           GIVEN     MSG
   50           BRANCH    END       100
   16 CONTROL   ENTRY                                   MESSAGE AT DESTINATION
   16           CALL      DESTPROC  WAIT      0         CONTEXT SWITCH MESSAGE
   16           GIVEN     MSG
   66 END       ENTRY
   66           END
```

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
TO1						
TOTAL	3	0.	0.	0.	0.	0.
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
3	0	3	3	0	0

ITEM	CREATED	RECEIVED	SENT	DESTR'D
MSG	0	0	0	0

ITEM	PROCESS # SMPLS	HOLDING TIME MEAN.....	MINIMUM..	MAXIMUM...	STD DEV...
MSG	3	0.	0.	0.	0.

PROCESS	DESCRIPTION
T01	

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
3		START	ALL	NO		
3		GIVEN	MSG			
3		RETURN	MSG			
3		END				

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
T02						
TOTAL	4	0.	0.	0.	0.	0.
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
4	0	4	4	0	0

ITEM	CREATED	RECEIVED	SENT	DESTR'D
MSG	0	0	0	0

ITEM	PROCESS # SMPLS	HOLDING TIME MEAN.....	MINIMUM..	MAXIMUM...	STD DEV...
MSG	4	0.	0.	0.	0.

PROCESS	DESCRIPTION
T02	

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
4		START	ALL	NO		
4		GIVEN	MSG			
4		RETURN	MSG			
4		END				

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
TO3						
TOTAL	1	0.	0.	0.	0.	0.
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
1	0	1	1	0	0

ITEM	CREATED	RECEIVED	SENT	DESTR'D
MSG	0	0	0	0

ITEM	PROCESS HOLDING TIME # SMPLS	MEAN.....	MINIMUM..	MAXIMUM...	STD DEV...
MSG	1	0.	0.	0.	0.

PROCESS	DESCRIPTION
TO3	

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
1		START	ALL	NO		
1		GIVEN	MSG			
1		RETURN	MSG			
1		END				

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
TO4						
TOTAL	3	0.	0.	0.	0.	0.
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
3	0	3	3	0	0

ITEM	CREATED	RECEIVED	SENT	DESTR'D

MSG	0	0	0	0

ITEM	PROCESS HOLDING TIME # SMPLS	MEAN.....	MINIMUM..	MAXIMUM...	STD DEV...
MSG	3	0.	0.	0.	0.

PROCESS	DESCRIPTION
T04	

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
3		START	ALL	NO		
3		GIVEN	MSG			
3		RETURN	MSG			
3		END				

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
T05						
TOTAL	1	0.	0.	0.	0.	0.
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
1	0	1	1	0	0

ITEM	CREATED	RECEIVED	SENT	DESTR'D
MSG	0	0	0	0

ITEM	PROCESS HOLDING TIME # SMPLS	MEAN.....	MINIMUM..	MAXIMUM...	STD DEV...
MSG	1	0.	0.	0.	0.

PROCESS	DESCRIPTION
T05	

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
1		START	ALL	NO		
1		GIVEN	MSG			
1		RETURN	MSG			

```
    1           END

                  TOTAL
PROCESS          SAMPLES.  SUM.......  MEAN......  STD DEV...  MINIMUM...  MAXIMUM...
===============  ========  =========  =========  ==========  ==========  ==========
T06
          TOTAL         4         0.         0.          0.          0.          0.
   PROCESS WAIT         0         0.         0.          0.          0.          0.
  RESOURCE WAIT         0         0.         0.          0.          0.          0.

        TOTAL #  # AUTO   # CALL   # OF     # NOT    # TIMES
        SCHEDULE SCHEDULE SCHEDULE COMPLETE COMPLETE SUSPEND.
        ======== ======== ======== ======== ======== ========
               4        0        4        4        0        0

         ITEM     CREATED  RECEIVED SENT     DESTR'D
         ======== ======== ======== ======== ========
         MSG             0        0        0        0

                   PROCESS  HOLDING  TIME
         ITEM     # SMPLS  MEAN......  MINIMUM..  MAXIMUM...  STD DEV...
         ======== ======== ========== ========== ========== ==========
         MSG             4         0.         0.         0.         0.

PROCESS           DESCRIPTION
======== ======== ========================================================
T06

COUNT ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
===== ======== ======== ======== ======== ======== ============================
    4          START    ALL      NO
    4          GIVEN    MSG
    4          RETURN   MSG
    4          END

                  TOTAL
PROCESS          SAMPLES.  SUM.......  MEAN......  STD DEV...  MINIMUM...  MAXIMUM...
===============  ========  =========  =========  ==========  ==========  ==========
TOHOST1
          TOTAL         3  19470.120  6490.040   3594.188    1662.747    10282.170
   PROCESS WAIT         3  19470.120  6490.040   3594.188    1662.747    10282.170
  RESOURCE WAIT         0        0.         0.          0.          0.          0.

        TOTAL #  # AUTO   # CALL   # OF     # NOT    # TIMES
        SCHEDULE SCHEDULE SCHEDULE COMPLETE COMPLETE SUSPEND.
        ======== ======== ======== ======== ======== ========
              46       46        0        3       43        0

PROCESS           DESCRIPTION
```

TOHOST1

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
46		START	ALL	NO		
46		CALL	MRS	WAIT	0	
46		GIVEN	TO1	PRI	$REQNORE	
46			38	H1	MSG	
3		END				

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
TOHOST2						
TOTAL	4	26057.603	6514.401	1926.681	3957.260	9089.472
PROCESS WAIT	4	26057.603	6514.401	1926.681	3957.260	9089.472
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
55	56	0	4	51	0

PROCESS	DESCRIPTION
TOHOST2	

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
55		START	ALL	NO		
55		CALL	MRS	WAIT	0	
55		GIVEN	TO2	PRI	$REQNORE	
55			38	H2	MSG	
4		END				

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
TOHOST3						
TOTAL	1	4686.563	4686.563	0.	4686.563	4686.563
PROCESS WAIT	1	4686.563	4686.563	0.	4686.563	4686.563
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
62	62	0	1	61	0

PROCESS DESCRIPTION

TOHOST3

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
62		START	ALL	NO		
62		CALL	MRS	WAIT	0	
62		GIVEN	TO3	PRI	$REQNORE	
62			36	H3	MSG	
1		END				

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
TOHOST4						
TOTAL	3	21133.596	7044.532	4182.631	1941.740	12186.823
PROCESS WAIT	3	21133.596	7044.532	4182.631	1941.740	12186.823
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
57	57	0	3	54	0

PROCESS DESCRIPTION

TOHOST4

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
57		START	ALL	NO		
57		CALL	MRS	WAIT	0	
57		GIVEN	TO4	PRI	$REQNORE	
57			36	H4	MSG	
3		END				

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
TOHOST5						
TOTAL	1	2419.557	2419.557	0.	2419.557	2419.557
PROCESS WAIT	1	2419.557	2419.557	0.	2419.557	2419.557
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
63	63	0	1	62	0

PROCESS DESCRIPTION
TOHOST5

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
63		START	ALL	NO		
63		CALL	MRS	WAIT	0	
63		GIVEN	TO5	PRI	$REQNORE	
63			36	H5	MSG	
1		END				

PROCESS	TOTAL SAMPLES	SUM	MEAN	STD DEV	MINIMUM	MAXIMUM
TOHOST6						
TOTAL	4	18088.932	4522.233	3478.327	1008.000	8726.711
PROCESS WAIT	4	18088.932	4522.233	3478.327	1008.000	8726.711
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
59	59	0	4	55	0

PROCESS DESCRIPTION
TOHOST8

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
59		START	ALL	NO		
59		CALL	MRS	WAIT	0	
59		GIVEN	TO8	PRI	$REQNORE	
59			36	H8	MSG	
4		END				

PROCESS	TOTAL SAMPLES	SUM	MEAN	STD DEV	MINIMUM	MAXIMUM
TRACE						
TOTAL	0	0.	0.	0.	0.	0.
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.

```
PAGE   56
              0         0         0         0         0         0

PROCESS            DESCRIPTION
======== ======== ==================================================
TRACE              TURN ON TRACE OUTPUT

COUNT ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
===== ======== ======== ======== ======== ======== ==========================
    0          START    ALL      NO
    0          TRACE    ON
    0          TRACE    ON
    0          END
```

APPENDIX A

Results Verification for

TESTDB1.DBF - Run 2

04/21/1987 10:34:24

TEST081 - RUN2

SECOND RUN WITH CHANGED VALUE OF SECS_CHR

PAGE 10

SIMULATION TIME = 15000.00000 MSECONDS

CONSTANT REPORT

CONSTANT	CURRENT VALUE
SECS_CHR	150.000

PAGE 23

SIMULATION TIME 15000 00000 MSECONDS

VARIABLE REPORT

NUMERIC VARIABLES

VARIABLE	TOTAL SAMPLES	VALUE				
		CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
V_ROUTER	386	0.	0.	0.	0.	0.

NON-NUMERIC VARIABLES...

VARIABLE	CURRENT TYPE	CURRENT VALUE

SIMULATION TIME = 15000 00000 MSECONDS

ITEM REPORT

ITEM NAME	NUMBER CREATED	NUMBER DESTR'D	TIME IN SYSTEM MINIMUM...	MAXIMUM...	AVERAGE...	STD DEV...
MSG	342	2	11808.00	13824.00	12816.00	1008.00

SIMULATION TIME - 15000.00000 MSECONDS

RESOURCE REPORT

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
B1						
# IDLE		1.000	1.000	0.	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	6					
OUT OF BUSY	6					
# BUSY		0.	0.	0.	0.	1.000
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	6					
OUT OF WAIT	6					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED TO PROCESSES: NONE

PROCESSES CURRENTLY WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
B1B2						
# IDLE		0.	0.	0.	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	3					
OUT OF BUSY	3					
# BUSY		0.	0.403	0.508	0.	2.000
BUSY TIME			2016.000	0.	2016.000	2016.000
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	3					
OUT OF WAIT	3					
# WAITING		0.	0.	0.	0.	1.000

WAIT TIME		0.	0.	0.	0.

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
B2						
# IDLE		1.000	1.000	0.	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	5					
OUT OF BUSY	5					
# BUSY		0.	0.	0.	0.	1.000
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	5					
OUT OF WAIT	5					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
B2B3						
# IDLE		0.	0.	0.	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	4					
OUT OF BUSY	4					
# BUSY		0.	0.269	0.443	0.	1.000
BUSY TIME			1008.000	+2.114E-04	1008.000	1008.000
# INACTIVE		0.	0.	0.	0.	0.

INTO WAIT	4					
OUT OF WAIT	4					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
B3						
# IDLE		1.000	1.000	0.	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	6					
OUT OF BUSY	6					
# BUSY		0.	0.	0.	0.	1.000
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	6					
OUT OF WAIT	6					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
B3B4						
# IDLE		1.000	0.597	0.491	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	6					
OUT OF BUSY	6					
# BUSY		0.	0.403	0.491	0.	1.000
BUSY TIME			1008.000	0.	1008.000	1008.000

# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	6					
OUT OF WAIT	6					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
B4						
# IDLE		1.000	1.000	0.	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	8					
OUT OF BUSY	8					
# BUSY		0.	0.	0.	0.	1.000
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	8					
OUT OF WAIT	8					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
B4B5						
# IDLE		1.000	0.597	0.491	0.	1.000
REQUEST TIME			122.695	274.132	0.	736.572
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	6					

OUT OF BUSY	6					
# BUSY		0.	0.403	0.491	0.	1.000
BUSY TIME			1008.000	+1.820E-04	1008.000	1008.000
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	6					
OUT OF WAIT	6					
# WAITING		0.	0.049	0.216	0.	1.000
WAIT TIME			122.595	274.132	0.	735.572

CURRENTLY ALLOCATED TO PROCESSES: NONE

PROCESSES CURRENTLY WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
B5						
# IDLE		1.000	1.000	0.	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	8					
OUT OF BUSY	8					
# BUSY		0.	0.	0.	0.	1.000
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	8					
OUT OF WAIT	8					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED TO PROCESSES: NONE

PROCESSES CURRENTLY WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
B586						
# IDLE		1.000	0.697	0.491	0.	1.000
REQUEST TIME			0.	0.	0.	0.

HOLD TIME	0		0	0.	0.	0.
INTO BUSY	6					
OUT OF BUSY	6					
# BUSY		0.	0.403	0.491	0.	1.000
BUSY TIME			1008.000	+1.820E-04	1008.000	1008.000
# INACTIVE		0.	0	0.	0.	0.
INTO WAIT	6					
OUT OF WAIT	6					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
86						
# IDLE		1.000	1.000	0.	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	8					
OUT OF BUSY	8					
# BUSY		0.	0.	0.	0.	1.000
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	8					
OUT OF WAIT	8					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...

B681

# IDLE		1.000	0.731	0.443	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	4					
OUT OF BUSY	4					
# BUSY		0.	0.269	0.443	0.	1.000
BUSY TIME			1008.000	0.	1008.000	1008.000
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	4					
OUT OF WAIT	4					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
BUFFER						
# IDLE		1.000	1.000	0.	1.000	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	0					
OUT OF BUSY	0					
# BUSY		0.	0.	0.	0.	0.
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	0					
OUT OF WAIT	0					
# WAITING		0.	0.	0.	0.	0.
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT	MEAN	STD DEV	MINIMUM	MAXIMUM
M1						
# IDLE		1.000	1.000	0.	0.	1.000
REQUEST TIME			0	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	56					
OUT OF BUSY	56					
# BUSY		0.	0.	0.	0.	1.000
BUSY TIME			0	0	0.	0.
# INACTIVE		0	0.	0.	0.	0.
INTO WAIT	56					
OUT OF WAIT	56					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED TO PROCESSES: NONE

PROCESSES CURRENTLY WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT	MEAN	STD DEV	MINIMUM	MAXIMUM
M2						
# IDLE		1.000	1.000	0.	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	58					
OUT OF BUSY	58					
# BUSY		0.	0.	0.	0.	1.000
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	58					
OUT OF WAIT	58					
# WAITING		0	0.	0	0.	1.000
WAIT TIME			0	0.	0.	0.

CURRENTLY ALLOCATED TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
H3						
# IDLE		1.000	1.000	0.	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	61					
OUT OF BUSY	61					
# BUSY		0.	0.	0.	0.	1.000
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	61					
OUT OF WAIT	61					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
H4						
# IDLE		1.000	1.000	0.	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	59					
OUT OF BUSY	59					
# BUSY		0.	0.	0.	0.	1.000
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	59					
OUT OF WAIT	59					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED TO PROCESSES: NONE

PROCESSES CURRENTLY WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT	MEAN	STD DEV	MINIMUM	MAXIMUM
M5						
# IDLE		1.000	1.000	0.	0.	1.000
REQUEST TIME			0	0	0.	0.
HOLD TIME	0		0	0	0.	0
INTO BUSY	44					
OUT OF BUSY	44					
# BUSY		0	0	0	0.	1.000
BUSY TIME			0	0	0.	0.
# INACTIVE		0	0	0	0.	0.
INTO WAIT	44					
OUT OF WAIT	44					
# WAITING		0	0.	0	0	1.000
WAIT TIME			0	0	0	0

CURRENTLY ALLOCATED TO PROCESSES: NONE

PROCESSES CURRENTLY WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT	MEAN	STD DEV	MINIMUM	MAXIMUM
M6						
# IDLE		1.000	1.000	0	0	1.000
REQUEST TIME			0	0.	0.	0.
HOLD TIME	0		0	0	0	0.
INTO BUSY	68					
OUT OF BUSY	68					
# BUSY		0	0	0	0	1.000
BUSY TIME			0	0	0	0
# INACTIVE		0	0	0	0	0.
INTO WAIT	68					
OUT OF WAIT	68					

CURRENTLY ALLOCATED
TO PROCESSES NONE

PROCESSES CURRENTLY
WAITING NONE

RESOURCE	TOTAL NUMBER	CURRENT	MEAN	STD DEV	MINIMUM	MAXIMUM
NB1_A						
# IDLE		0	0.002	0.047	0	1.000
REQUEST TIME			5223.621	4224.186	0	10346.603
IDLE TIME	0		0	0	0.	0.
INTO BUSY	3					
OUT OF BUSY	2					
# BUSY		1.000	0.998	0.047	0	1.000
BUSY TIME			5400.000	+3.052E-04	5400.000	5400.000
# INACTIVE		0	0.	0.	0	0.
INTO WAIT	54					
OUT OF WAIT	3					
# WAITING		51.000	22.368	14.305	0	51.000
WAIT TIME			6223.621	4224.186	0	10345.603

CURRENTLY ALLOCATED
TO PROCESSES CHANPROC

PROCESSES CURRENTLY
WAITING

CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC				

RESOURCE	TOTAL NUMBER	CURRENT	MEAN	STD DEV	MINIMUM	MAXIMUM
NB1_B						

# IDLE		0	0.573	0.495	0	1.000
REQUEST TIME			1665.800	1665.800	0	3331.601
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	2					
OUT OF BUSY	1					
# BUSY		1.000	0.427	0.495	0	1.000
BUSY TIME			5400.000	0	5400.000	5400.000
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	3					
OUT OF WAIT	2					
# WAITING		1.000	0.418	0.707	0.	2.000
WAIT TIME			1665.800	1665.800	0.	3331.601

CURRENTLY ALLOCATED TO PROCESSES: CHANPROC

PROCESSES CURRENTLY WAITING: CHANPROC

RESOURCE	TOTAL NUMBER	CURRENT	MEAN	STD DEV	MINIMUM	MAXIMUM
HB2_A						
# IDLE		0.	0.015	0.120	0.	1.000
REQUEST TIME			5379.212	4395.779	0.	10787.404
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	3					
OUT OF BUSY	2					
# BUSY		1.000	0.985	0.120	0.	1.000
BUSY TIME			5400.000	+3.439E 04	5400.000	5400.000
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	58					
OUT OF WAIT	3					
# WAITING		55.000	29.472	15.781	0.	55.000
WAIT TIME			5379.212	4395.779	0.	10787.404

CURRENTLY ALLOCATED TO PROCESSES: CHANPROC

PROCESSES CURRENTLY WAITING:

CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC

CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
HB2_B						
# IDLE		0.	0.857	0.350	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	1					
OUT OF BUSY	0					
# BUSY		1.000	0.143	0.350	0.	1.000
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	1					
OUT OF WAIT	1					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED TO PROCESSES: CHANPROC

PROCESSES CURRENTLY WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
HB3_A						
# IDLE		0.	0.013	0.112	0.	1.000
REQUEST TIME			5343.044	4370.395	0.	10706.193
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	3					
OUT OF BUSY	2					
# BUSY		1.000	0.987	0.112	0.	1.000
BUSY TIME			5400.000	-3.439E-04	5400.000	5400.000

# INACTIVE		0	0.	0	0.	0.
INTO WAIT	61					
OUT OF WAIT	3					
# WAITING		58.000	30.247	14.162	0.	58.000
WAIT TIME			5343.644	4370.395	0.	10705.193

CURRENTLY ALLOCATED
TO PROCESSES: CHANPROC

PROCESSES CURRENTLY
WAITING:

CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC		

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
HB3_B						
# IDLE		1.000	1.000	0.	1.000	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0	0.	0.
INTO BUSY	0					
OUT OF BUSY	0					
# BUSY		0.	0.	0.	0.	0.
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	0					
OUT OF WAIT	0					
# WAITING		0.	0.	0.	0.	0.
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
HB4_A						
# IDLE		0.	0.011	0.105	0.	1.000
REQUEST TIME			5115.079	4162.391	0.	10195.557
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	3					
OUT OF BUSY	2					
# BUSY		1.000	0.989	0.105	0.	1.000
BUSY TIME			5400.000	+0.716E-04	5400.000	5400.000
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	59					
OUT OF WAIT	3					
# WAITING		56.000	30.340	16.543	0.	56.000
WAIT TIME			5115.079	4162.391	0.	10195.557

CURRENTLY ALLOCATED TO PROCESSES: CHANPROC

PROCESSES CURRENTLY WAITING:

CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC
CHANPROC				

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
HB4_B						
# IDLE		0.	0.800	0.400	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	1					
OUT OF BUSY	0					
# BUSY		1.000	0.200	0.400	0.	1.000
BUSY TIME			0.	0.	0.	0.

# INACTIVE		0.	0	0	0.	0.
INTO WAIT	2					
OUT OF WAIT	1					
# WAITING		1.000	0.131	0.337	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED
TO PROCESSES: CHANPROC

PROCESSES CURRENTLY
WAITING: CHANPROC

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
H85_A						
# IDLE		0.	0.005	0.069	0.	1.000
REQUEST TIME			4787.326	4009.084	0.	9811.628
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	3					
OUT OF BUSY	2					
# BUSY		1.000	0.995	0.069	0.	1.000
BUSY TIME			5400.000	+5.709E-05	5400.000	5400.000
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	44					
OUT OF WAIT	3					
# WAITING		41.000	21.196	13.985	0.	41.000
WAIT TIME			4787.326	4009.084	0.	9811.628

CURRENTLY ALLOCATED
TO PROCESSES: CHANPROC

PROCESSES CURRENTLY
WAITING:

CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC	
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC	
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC	
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC	
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC	
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC	
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC	
CHANPROC	CHANPROC	CHANPROC	CHANPROC	CHANPROC	
CHANPROC					

TOTAL

RESOURCE	NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
HB5_B						
# IDLE		0.	0.698	0.459	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	1					
OUT OF BUSY	0					
# BUSY		1.000	0.302	0.459	0.	1.000
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	2					
OUT OF WAIT	1					
# WAITING		1.000	0.220	0.414	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED TO PROCESSES: CHANPROC

PROCESSES CURRENTLY WAITING: CHANPROC

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
HB6_A						
# IDLE		0.	0.017	0.129	0.	1.000
REQUEST TIME			5132.563	4226.190	0.	10350.942
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	3					
OUT OF BUSY	2					
# BUSY		1.000	0.983	0.129	0.	1.000
BUSY TIME			5400.000	+0.863E-04	5400.000	5400.000
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	66					
OUT OF WAIT	3					
# WAITING		63.000	29.964	18.931	0.	63.000
WAIT TIME			5132.563	4226.190	0.	10350.942

CURRENTLY ALLOCATED TO PROCESSES: CHANPROC

PROCESSES CURRENTLY

WAITING: CHANPROC CHANPROC CHANPROC CHANPROC CHANPROC
CHANPROC CHANPROC CHANPROC CHANPROC CHANPROC
CHANPROC CHANPROC CHANPROC CHANPROC CHANPROC
CHANPROC CHANPROC CHANPROC CHANPROC CHANPROC
CHANPROC CHANPROC CHANPROC CHANPROC CHANPROC
CHANPROC CHANPROC CHANPROC CHANPROC CHANPROC
CHANPROC CHANPROC CHANPROC CHANPROC CHANPROC
CHANPROC CHANPROC CHANPROC CHANPROC CHANPROC
CHANPROC CHANPROC CHANPROC CHANPROC CHANPROC
CHANPROC CHANPROC CHANPROC CHANPROC CHANPROC
CHANPROC CHANPROC CHANPROC CHANPROC CHANPROC
CHANPROC CHANPROC CHANPROC

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
HB6_B						
# IDLE		0.	0.432	0.495	0.	1.000
REQUEST TIME			1633.234	1633.234	0.	3266.469
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	2					
OUT OF BUSY	1					
# BUSY		1.000	0.568	0.495	0.	1.000
BUSY TIME			5400.000	0.	5400.000	5400.000
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	4					
OUT OF WAIT	2					
# WAITING		2.000	0.511	0.649	0.	2.000
WAIT TIME			1633.234	1633.234	0.	3266.469

CURRENTLY ALLOCATED
TO PROCESSES: CHANPROC

PROCESSES CURRENTLY
WAITING: CHANPROC CHANPROC

SIMULATION TIME = 15000.00000 MSECONDS

ACTION REPORT

ACTION	TOTAL SAMPLES	MEAN.....	STD DEV...	MINIMUM..	MAXIMUM...	% TIME OF TOTAL.
CS_OH						
USEFUL TIME	0	0.	0.	0.	0.	0.
DELAY TIME	0	0.	0.	0.	0.	
WASTED TIME	0	0.	0.	0.	0.	

ACTION	TOTAL SAMPLES	MEAN.....	STD DEV...	MINIMUM..	MAXIMUM...	% TIME OF TOTAL.
ROUTE_OH						
USEFUL TIME	385	0.	0.	0.	0.	0.
DELAY TIME	385	0.	0.	0.	0.	
WASTED TIME	0	0.	0.	0.	0.	

ACTION	TOTAL SAMPLES	MEAN.....	STD DEV...	MINIMUM..	MAXIMUM...	% TIME OF TOTAL.
XFER_OH						
USEFUL TIME	43	2508.279	2024.946	1008.000	5400.000	719.040
DELAY TIME	43	0.	0.	0.	0.	
WASTED TIME	0	0.	0.	0.	0.	

SIMULATION TIME = 15000.00000 MSECONDS

PROCESS REPORT

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
CHANPROC						
TOTAL	8	65088.000	8136.000	2902.190	6400.000	13824.000
PROCESS WAIT	8	39456.000	4932.000	2996.013	0.	8424.000
RESOURCE WAIT	54	100277.981	1857.000	3440.713	0.	10787.404

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
383	0	383	8	375	0

ITEM	CREATED	RECEIVED	SENT	DESTR'D
MSG	0	0	0	0

ITEM	PROCESS HOLDING TIME # SMPLS	MEAN.....	MINIMUM..	MAXIMUM...	STD DEV...
MSG	43	3240.92	1008.00	10770.23	3368.01

PROCESS	DESCRIPTION
CHANPROC	FULL AND HALF DUPLEX CHANNEL LOGIC

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
383		START	ALL	NO		
383		GIVEN	MSG			
383		ASSIGN	MSG	CNODE		SET INTERNAL NODE CURRENT
383			$CNODE			
383		ASSIGN	MSG	TNODE		GET DESTINATION NODE
383			TO_NODE			
383		ASSIGN	$NXTNODE	TO_NODE		SET NEXT NODE TO DESTN
383			NXT_NODE			
383		ASSIGN	$CHANNEL	TO_NODE		GET CHANNEL TO NEXT NODE
383			CHANNEL			
383		ALLOC	CHANNEL	1	ALL	
383			$PRIORTY			
54		ASSIGN	CHANNEL	RATE		WHAT IS CHANNEL RATE?
54			VSPEED			
54		ASSIGN	MSG	LENGTH		MESSAGE LENGTH
54			VLENGTH			

```
PAGE   45
    54              EVAL      VM_OVHD                          CALCULATE TRANSFER TIME
    54                        VSPEED     *       VLENGTH
    54              COMPARE   VSPEED                 NE
    54                        167                    AHD
     0              ASSIGN    0
     0                        VM_OVHD
    54 AHD          ENTRY
    54              XFER_OH   CONSTANT  VM_OVHD              DELAY DUE TO TRANSFER TIME
    54                        MSECONDS  RESUME
    43              ASSIGN    NXT_NODE                       MSG RESIDES IN NEXT NODE
    43                        MSG       CNODE
    43              ASSIGN    NXT_NODE                       SET INTERNAL NODE REGISTER
    43                        $CNODE
    43              DEALLOC   CHANNEL   1                    FREE UP CHANNEL AFTER XFER
    43              CALL      NODEPROC  WAIT      0          ROUTE MESSAGE TO NEXT NODE
    43              GIVEN     MSG
     8              END

                     TOTAL
PROCESS              SAMPLES.  SUM.......  MEAN.......  STD DEV...  MINIMUM...  MAXIMUM...
==================== ========  ==========  ==========  ==========  ==========  ==========
DESTPROC
          TOTAL             2         0.          0.          0.          0.          0.
  PROCESS WAIT              2         0.          0.          0.          0.          0.
 RESOURCE WAIT              2         0.          0.          0.          0.          0.

        TOTAL #   # AUTO     # CALL     # OF       # NOT      # TIMES
        SCHEDULE  SCHEDULE   SCHEDULE   COMPLETE   COMPLETE   SUSPEND.
        ========  ========   ========   ========   ========   ========
               2         0          2          2          0          0

         ITEM      CREATED   RECEIVED  SENT      DESTR'D
         ========  ========  ========  ========  ========
         MSG              0         0         0         2

                    PROCESS  HOLDING  TIME
         ITEM      # SMPLS   MEAN.....  MINIMUM..  MAXIMUM...  STD DEV...
         ========  ========  ==========  ==========  ==========  ==========
         MSG              4         0.          0.          0.          0.

PROCESS              DESCRIPTION
======== ========    ==========================================================
DESTPROC             PROCESSING AT DESTINATION OF MESSAGE

COUNT ENTRY     OPCODE    PARM      PARM      PARM      COMMENT
===== ========  ========  ========  ========  ========  ============================
    2           START     ALL       NO
    2           GIVEN     MSG
    2           ASSIGN    MSG       CNODE               CURRENT NODE
```

```
PAGE   46
    2                   C NODE
    2          COMPARE  MSG       TYPE      EQ        IF RESPONSE, DESTROY
    2                   $RESP               DESTROY
    2          ALLOC    C NODE    1         ALL
    2                   $PRIORTY
    2          ASSIGN   MSG       RPROC               EXECUTE THE CALLED PROCESS
    2                   PROCESS
    2          ASSIGN   MSG       RPROCPRI            SET PRIORITY FOR REQ PROC
    2                   PRIORITY
    2          CALL     PROCESS   WAIT      PRIORITY WAIT UNTIL COMPLETE
    2          GIVEN    MSG
    2          RETURN   MSG
    2          DEALLOC  C NODE    1                   DEALLOCATE CURRENT NODE
    2          COMPARE  MSG       TYPE      EQ        NO RESPONSE REQ -> DESTROY
    2                   $REQNORE            DESTROY
    0          ASSIGN   $RESP                        CHANGE MSG RESPONSE TYPE
    0                   MSG       TYPE
    0          ASSIGN   MSG       FNODE               SWITCH FROM AND TO NODES
    0                   MSG       TNODE
    0          ASSIGN   MSG       CNODE               CURRENT NODE IS FROM NODE
    0                   MSG       FNODE
    0          CALL     CHANPROC  WAIT      0         RETURN MESSAGE TO ORIGIN
    0          GIVEN    MSG
    0          BRANCH   END       100
    2 DESTROY  ENTRY                                  TERMINATE MESSAGE AT DEST
    2          DESTROY  MSG                           TERMINATE MSG
    2 END      ENTRY
    2          END

                 TOTAL
PROCESS         SAMPLES. SUM....... MEAN...... STD DEV... MINIMUM... MAXIMUM...
=============== ======== ========== ========== ========== ========== ==========
MRS
          TOTAL        2  25632.000  12816.000   1008.000  11808.000  13824.000
   PROCESS WAIT        2  25632.000  12816.000   1008.000  11808.000  13824.000
  RESOURCE WAIT        0      0.          0.         0.         0.         0.

       TOTAL #  # AUTO   # CALL   # OF     # NOT    # TIMES
       SCHEDULE SCHEDULE SCHEDULE COMPLETE COMPLETE SUSPEND.
       ======== ======== ======== ======== ======== ========
           342        0      342        2      340        0

        ITEM     CREATED  RECEIVED SENT     DESTR'D
        ======== ======== ======== ======== ========
        MSG           342        0        0        0

                  PROCESS  HOLDING  TIME
        ITEM     # SMPLS  MEAN...... MINIMUM..  MAXIMUM... STD DEV...
        ======== ======== ========== ========== ========== ==========
```

	MSG	342	0.	0.	0.	0.

PROCESS	DESCRIPTION
VRS	GENERATE A PROCESS REQUEST MESSAGE AND INITIATE I/O

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
342		START	ALL	NO		
342		GIVEN	PROCESS	PRIORITY	MSG_TYPE	
342			MSG_LNTH	TO_NODE	MSG	
342		CREATE	MSG			CREATE MESSAGE
342		ASSIGN	MSG_LNTH			SET MESSAGE LENGTH
342			MSG	LENGTH		
342		ASSIGN	PROCESS			SET PROCESS
342			MSG	RPROC		
342		ASSIGN	PRIORITY			SET PRIORITY
342			MSG	RPROCPRI		
342		ASSIGN	TO_NODE			SET DESTINATION
342			MSG	TNODE		
342		ASSIGN	MSG_TYPE			SET MESSAGE TYPE
342			MSG	TYPE		
342		CALL	NODEPROC	WAIT	0	EXECUTIVE SERVICING OF MSG
342		GIVEN	MSG			
2		END				

PROCESS	TOTAL SAMPLES	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
NODEPROC						
TOTAL	10	65088.000	6508.800	4162.845	0.	13824.000
PROCESS WAIT	10	65088.000	6508.800	4162.845	0.	13824.000
RESOURCE WAIT	385	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
385	0	385	10	375	0

ITEM	CREATED	RECEIVED	SENT	DESTR'D
MSG	0	0	0	0

ITEM	PROCESS HOLDING TIME # SMPLS	MEAN.....	MINIMUM..	MAXIMUM...	STD DEV...
MSG	385	0.	0.	0.	0.

PROCESS	DESCRIPTION

NODEPROC NODAL PROCESSING AND ROUTING

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
385		START	ALL	NO		
385		GIVEN	MSG			
385		ASSIGN	MSG	CNODE		INDICATE CURRENT NODE
385			C_NODE			
385		ASSIGN	C_NODE	M_ROUTE		PROCESSING RATE OF NODE
385			RT_OVHD			
385		ASSIGN	MSG	LENGTH		GET MESSAGE LENGTH
385			MSG_LNTH			
385		EVAL	OVERHEAD			COMPUTE PROCESSING DELAY
385			MSG_LNTH*RT_OVHD			
385		ASSIGN	OVERHEAD			SAMPLE OVERHEAD FOR PLOT
385			V_ROUTER			
385		ALLOC	C_NODE	1	ALL	
385			$PRIORTY			
385		ROUTE_OH	CONSTANT	OVERHEAD		DELAY FOR ROUTING
385			MSECONDS	RESUME		
385		DEALLOC	C_NODE	1		RELEASE C_NODE TO OTHERS
385		COMPARE	MSG	CNODE	EQ	IS MSG AT DESTINATION?
385			MSG	TNODE	CONTROL	
383		CALL	CHANPROC	WAIT	0	FORWARD MSG TO CHANNEL
383		GIVEN	MSG			
8		BRANCH	END	100		
2	CONTROL	ENTRY				MESSAGE AT DESTINATION
2		CALL	DESTPROC	WAIT	0	CONTEXT SWITCH MESSAGE
2		GIVEN	MSG			
10	END	ENTRY				
10		END				

PROCESS	TOTAL SAMPLES	SUM	MEAN	STD DEV	MINIMUM	MAXIMUM
T01						
TOTAL	1	0	0.	0.	0.	0.
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	0	0	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
1	0	1	1	0	0

ITEM	CREATED	RECEIVED	SENT	DESTR'D
MSG	0	0	0	0

PAGE 11

PROCESS HOLDING TIME

CLASS	# SAMPLES	MEAN	MINIMUM	MAXIMUM	STD DEV
[illegible]	1	0	0	0	0.

PROCESS DESCRIPTION

TQ1

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
1		START	ALL	NO		
1		GIVEN	MSG			
1		RETURN	MSG			
1		END				

PROCESS	TOTAL SAMPLES	SUM	MEAN	STD DEV	MINIMUM	MAXIMUM
TQ2						
TOTAL	0	0	0	0.	0	0
PROCESS WAIT	0	0.	0	0	0	0
RESOURCE WAIT	0	0	0	0	0	0

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND
0	0	0	0	0	0

PROCESS DESCRIPTION

TQ2

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
0		START	ALL	NO		
0		GIVEN	MSG			
0		RETURN	MSG			
0		END				

PROCESS	TOTAL SAMPLES	SUM	MEAN	STD DEV	MINIMUM	MAXIMUM
TQ3						
TOTAL	0	0.	0.	0.	0.	0.
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	0	0.	0.	0	0.	0.

```
PAGE   [illegible]
          TA  #  # AUTO   # CALL   # OF     # NOT    # TIMES
          [illegible] SCHEDULE SCHEDULE COMPLETE COMPLETE SUSPEND.
                 [illegible]
              0        0        0        0        0        0

PROCESS            DESCRIPTION
=======  [illegible] ==========================================
T03

COUNT ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
===== ======== ======== ======== ======== ======== ==========================
    0          START    ALL      NO
    0          GIVEN    MSG
    0          RETURN   MSG
    0          END

                 TOTAL
PROCESS         SAMPLES. SUM....... MEAN...... STD DEV... MINIMUM... MAXIMUM...
======= ====== ======== ========== ========== ========== ========== ==========
T04
          TOTAL        0       0          0.         0.         0.         0.
   PROCESS WAIT        0       0.         0.         0.         0.         0.
  RESOURCE WAIT        0       0          0          0.         0.         0.

        TOTAL #  # AUTO   # CALL   # OF     # NOT    # TIMES
        SCHEDULE SCHEDULE SCHEDULE COMPLETE COMPLETE SUSPEND.
         ======= ======== ======== ======== ======== ========
              0        0        0        0        0        0

PROCESS            DESCRIPTION
======== ======== ==========================================================
T04

COUNT ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
===== ======== ======== ======== ======== ======== ==========================
    0          START    ALL      NO
    0          GIVEN    MSG
    0          RETURN   MSG
    0          END

                 TOTAL
PROCESS         SAMPLES. SUM....... MEAN...... STD DEV... MINIMUM... MAXIMUM...
=============== ======== ========== ========== ========== ========== ==========
T05
          TOTAL        0       0.         0.         0.         0.         0.
   PROCESS WAIT        0       0.         0          0.         0.         0.
  RESOURCE WAIT        0       0.         0.         0.         0.         0.

        TOTAL #  # AUTO   # CALL   # OF     # NOT    # TIMES
```

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
0	0	0	0	0	0

PROCESS DESCRIPTION

T05

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
0		START	ALL	NO		
0		GIVEN	MSG			
0		RETURN	MSG			
0		END				

PROCESS	TOTAL SAMPLES	SUM	MEAN	STD DEV	MINIMUM	MAXIMUM
T06						
TOTAL	1	0.	0.	0.	0.	0.
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
1	0	1	1	0	0

ITEM	CREATED	RECEIVED	SENT	DESTR'D
MSG	0	0	0	0

ITEM	PROCESS HOLDING TIME # SMPLS	MEAN	MINIMUM	MAXIMUM	STD DEV
MSG	1	0.	0.	0.	0.

PROCESS DESCRIPTION

T06

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
1		START	ALL	NO		
1		GIVEN	MSG			
1		RETURN	MSG			
1		END				

TOTAL

PROCESS	SAMPLES	SUM	MEAN	STD DEV	MINIMUM	MAXIMUM
TOHOST1						
TOTAL	1	13824.000	13824.000	0	13824.000	13824.000
PROCESS WAIT	1	13824.000	13824.000	0	13824.000	13824.000
RESOURCE WAIT	0	0	0	0	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
46	46	0	1	45	0

PROCESS	DESCRIPTION
TOHOST1	

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
46		START	ALL	NO		
46		CALL	MRS	WAIT	0	
46		GIVEN	T01	PRI	$REQNORE	
46			36	H1	MSG	
1		END				

PROCESS	TOTAL SAMPLES	SUM	MEAN	STD DEV	MINIMUM	MAXIMUM
TOHOST2						
TOTAL	0	0.	0.	0.	0.	0.
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
55	55	0	0	55	0

PROCESS	DESCRIPTION
TOHOST2	

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
55		START	ALL	NO		
55		CALL	MRS	WAIT	0	
55		GIVEN	T02	PRI	$REQNORE	
55			36	H2	MSG	
0		END				

PROCESS	TOTAL SAMPLES	SUM	MEAN	STD DEV	MINIMUM	MAXIMUM
TOHOST3						
TOTAL	0	0	0.	0.	0.	0.
PROCESS WAIT	0	0	0.	0.	0.	0.
RESOURCE WAIT	0	0	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
62	62	0	0	62	0

PROCESS	DESCRIPTION
TOHOST3	

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
62		START	ALL	NO		
62		CALL	MRS	WAIT	0	
62		GIVEN	T03	PRI	$REQNORE	
62			36	H3	MSG	
0		END				

PROCESS	TOTAL SAMPLES	SUM	MEAN	STD DEV	MINIMUM	MAXIMUM
TOHOST4						
TOTAL	0	0.	0.	0.	0.	0.
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
57	57	0	0	57	0

PROCESS	DESCRIPTION
TOHOST4	

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
57		START	ALL	NO		
57		CALL	MRS	WAIT	0	
57		GIVEN	T04	PRI	$REQNORE	
57			36	H4	MSG	
0		END				

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
TOHOST5						
TOTAL	0	0.	0.	0.	0.	0.
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
63	63	0	0	63	0

PROCESS	DESCRIPTION
TOHOST5	

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
63		START	ALL	NO		
63		CALL	MRS	WAIT	0	
63		GIVEN	T05	PRI	$REQNORE	
63			36	H5	MSG	
0		END				

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
TOHOST6						
TOTAL	1	11808.000	11808.000	0.	11808.000	11808.000
PROCESS WAIT	1	11808.000	11808.000	0.	11808.000	11808.000
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
59	59	0	1	58	0

PROCESS	DESCRIPTION
TOHOST6	

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
59		START	ALL	NO		
59		CALL	MRS	WAIT	0	
59		GIVEN	T06	PRI	$REQNORE	
59			36	H6	MSG	

```
    1           END

                  TOTAL
PROCESS          SAMPLES.  SUM.......  MEAN......  STD DEV...  MINIMUM...  MAXIMUM...
---------------  --------  ----------  ----------  ----------  ----------  ----------
TRACE
          TOTAL         0          0.          0.          0.          0.          0.
  PROCESS WAIT          0          0.          0.          0.          0.          0.
 RESOURCE WAIT          0          0.          0.          0.          0.          0.

        TOTAL #  # AUTO    # CALL    # OF      # NOT     # TIMES
        SCHEDULE SCHEDULE  SCHEDULE  COMPLETE  COMPLETE  SUSPEND.
        -------- --------  --------  --------  --------  --------
               0         0         0         0         0         0

PROCESS           DESCRIPTION
--------  --------  ------------------------------------------------------
TRACE               TURN ON TRACE OUTPUT

COUNT ENTRY     OPCODE    PARM      PARM      PARM      COMMENT
----- --------  --------  --------  --------  --------  ----------------------------
    0           START     ALL       NO
    0           TRACE     ON
    0           TRACE     ON
    0           END
```

APPENDIX B

Model Descriptions for Simulator Acceptance Tests

TESTDBA.DBF through TESTDBF.DBF

APPENDIX B

Test 1 Model - File Verification

TESTDBA.DBF Listing

```
$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$
$                    S I M U L A T I O N   R E P O R T                        $
$                          AISIM VERSION 6.0                                  $
$                       HUGHES AIRCRAFT COMPANY                               $
$                            05/15/87                                         $
$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

                        04/22/1987          17:18:25

                            TESTDBA

TEST ITEMS, RESOURCE PREEMPTION, CALL PROCESS, AND ACTION RESTART LOGIC




GLOBAL CONSTANT DEFINITION.....

CONSTANT INITIAL
MNEMONIC VALUE    COMMENT
======== ======== ==================================================

FILE DEFINITION.....

FILE
MNEMONIC          COMMENT
======== ======== ==================================================

TABLE DEFINITION....


GLOBAL VARIABLE DEFINITION.....

VARIABLE INITIAL
MNEMONIC VALUE    COMMENT
======== ======== ==================================================
C_TRACE  1        TRACE ON=1, OFF=1
V_COUNT1 10       GLOBAL VARIABLE

ITEM DEFINITION......


ITEM                        DESCRIPTION
======== ================== ==========================================
```

AITEM1

ITEM	DESCRIPTION

AITEM2

ITEM	DESCRIPTION

AITEM3

ITEM	DESCRIPTION

AITEM4

ITEM	DESCRIPTION

ITEM1

ITEM	DESCRIPTION

ITEM2

ITEM	DESCRIPTION

ITEM3

ITEM	DESCRIPTION

ITEM4

ITEM	DESCRIPTION

ITEM5

ITEM	DESCRIPTION

ITEM6

QUEUE DEFINITION.....

QUEUE MNEMONIC | MAXIMUM SIZE | COMMENT

RESOURCE DEFINITION.....

RESOURCE MNEMONIC	TOTAL # UNITS	INITIAL # UNITS	DESCRIPTION
CPU1	8	8	
CPU2	8	8	
CPU3	8	8	
TESTRES	8	8	

ARCHITECTURE LEGAL PATH DEFINITION

FROM DEVICE	TO DEVICE	NEXT DEVICE	VIA LINK

ACTION DEFINITION.....

ACTION MNEMONIC	COMMENT
DELAY	
LNGDELAY	
MEDDELAY	
SRTDELAY	

PROCESS DEFINITION.....

PROCESS MNEMONIC	DESCRIPTION
ACYCLIC	CYCLIC ACTION RESTART CONTROL PROCESS

ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
	START	ALL	NO		
LOOP	ENTRY				CYCLE CONTROL LOOP
********** ALLOCATE 1-6 **********					
	ALLOC	TESTRES 1		PARTIAL	

```
PAGE    4
          DELAY     CONSTANT 1
                    SECONDS  RESUME
          ALLOC     TESTRES  1          PARTIAL
                    1
          DELAY     CONSTANT 1
                    SECONDS  RESUME
          ALLOC     TESTRES  1          PARTIAL
                    1
          DELAY     CONSTANT 1
                    SECONDS  RESUME
          ALLOC     TESTRES  1          PARTIAL
                    1
          DELAY     CONSTANT 1
                    SECONDS  RESUME
          ALLOC     TESTRES  1          PARTIAL
                    1
          DELAY     CONSTANT 1
                    SECONDS  RESUME
********** DEALLOCATE 5-1 **********
          DEALLOC   TESTRES  1
          DELAY     CONSTANT 1
                    SECONDS  RESUME
          DEALLOC   TESTRES  1
          DELAY     CONSTANT 1
                    SECONDS  RESUME
          DEALLOC   TESTRES  1
          DELAY     CONSTANT 1
                    SECONDS  RESUME
          DEALLOC   TESTRES  1
          DELAY     CONSTANT 1
                    SECONDS  RESUME
          DEALLOC   TESTRES  1
          DELAY     CONSTANT 1
                    SECONDS  RESUME
********** ALLOCATE 1-4 **********
          ALLOC     TESTRES  1          PARTIAL
                    1
          DELAY     CONSTANT 1
                    SECONDS  RESUME
          ALLOC     TESTRES  1          PARTIAL
                    1
          DELAY     CONSTANT 1
                    SECONDS  RESUME
          ALLOC     TESTRES  1          PARTIAL
                    1
          DELAY     CONSTANT 1
                    SECONDS  RESUME
          ALLOC     TESTRES  1          PARTIAL
                    1
```

```
PAGE     5
         DELAY     CONSTANT 1
                   SECONDS  RESUME
         DEALLOC   TESTRES  4
         BRANCH    LOOP     100
         END

LOCAL VARIABLES OF PROCESS ACYCLIC
================================================================================
    1 TESTRES    (R)     2 DELAY      (A)
PROCESS
MNEMONIC            DESCRIPTION
======== ======== ========================================================
ATEST               ACTION RESTART PROCESS WHICH GETS INTERRUPTED

ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ========================
         START    ALL      NO
         GIVEN    STATACTN
         ALLOC    TESTRES  5        PARTIAL
                  10
         STATACTN CONSTANT 4
                  SECONDS  RESTART
         DEALLOC  TESTRES  5
         END

LOCAL VARIABLES OF PROCESS ATEST
================================================================================
    1 STATACTN          2 TESTRES    (R)
PROCESS
MNEMONIC            DESCRIPTION
======== ======== ========================================================
ATRIGGER            TRIGGER ACTION RESTART TEST PROCESS

ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ========================
         START    ALL      NO
LOOP     ENTRY
         CALL     ATEST    NOWAIT   0
         GIVEN    MEDDELAY
         DELAY    CONSTANT 12
                  SECONDS  RESUME
         CALL     ATEST    NOWAIT   0
         GIVEN    LNGDELAY
         DELAY    CONSTANT 13
                  SECONDS  RESUME
         CALL     ATEST    NOWAIT   0
         GIVEN    SRTDELAY
```

```
PAGE     6
         DELAY     CONSTANT 3
                   SECONDS  RESUME
         LOOP      LOOP     5
         END

LOCAL VARIABLES OF PROCESS ATRIGGER
=================================================================
    1 ATEST      (P)     2 MEDDELAY  (A)     3 DELAY      (A)     4 LNGDELAY  (A)
    5 SRTDELAY  (A)
PROCESS
MNEMONIC            DESCRIPTION
======== ======== ==================================================
INIT1               TEST CALL BLOCK


ENTRY    OPCODE    PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ========================
         START     ALL      NO
         ASSIGN    1                          INITIALIZE COUNTER
                   L
NEXT     ENTRY                                CONTINUE FOR ALL CALLS
         COMPARE   L                 GT       TEST VALUE OF COUNTER
                   V_COUNT1          WAIT
         CALL      PROCESS1 BLOCK    L        INITIATE PARALLEL INSTANT
         GIVEN     L
         EVAL      L                          INCREMENT COUNTER
                   L+1
         BRANCH    NEXT     100               BRANCH
WAIT     ENTRY                                ENTRY
         WAIT                                 SYNCHRONIZE FOR ALL
         END

LOCAL VARIABLES OF PROCESS INIT1
=================================================================
    1 L                 2 PROCESS1  (P)

GLOBAL VARIABLES OF PROCESS INIT1
=================================================================
    1 V_COUNT1
PROCESS
MNEMONIC            DESCRIPTION
======== ======== ==================================================
INIT2               TEST CALL BLOCK AND NOWAIT


ENTRY    OPCODE    PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ========================
         START     ALL      NO
         ASSIGN    1                          INITIALIZE COUNTER
```

```
PAGE    7
                L
NEXT    ENTRY                                   CONTINUE FOR ALL CALLS
        COMPARE L               GT              TEST VALUE OF COUNTER
                V_COUNT1        WAIT
        CALL    PROCESS2 BLOCK  0               INITIATE PARALLEL INSTANT
        EVAL    L                               INCREMENT COUNTER
                L+1
        BRANCH  NEXT    100                     BRANCH
WAIT    ENTRY                                   ENTRY
        CALL    PROCESS2 NOWAIT 0               SYNCHRONIZE FOR ALL
        WAIT
        END

LOCAL VARIABLES OF PROCESS INIT2
================================================================================
    1 L                 2 PROCESS2  (P)

GLOBAL VARIABLES OF PROCESS INIT2
================================================================================
    1 V_COUNT1
PROCESS
MNEMONIC            DESCRIPTION
======== ======== ========================================================
INIT3               CREATE, SEND, ACTION DELAY FOR 6 ITEMS


ENTRY   OPCODE  PARM    PARM    PARM    COMMENT
------- ------- ------- ------- ------- ------------------------
        START   ALL     NO
NEXT    ENTRY                           ENTRY
        CREATE  ITEM1
        SEND    PROCESS3 ITEM1          SEND AN ITEM TO PROCESS3
        DELAY   CONSTANT 1              ACTION
                SECONDS  RESUME
        CREATE  ITEM2
        SEND    PROCESS3 ITEM2
        DELAY   CONSTANT 1              ACTION
                SECONDS  RESUME
        CREATE  ITEM3
        SEND    PROCESS3 ITEM3
        DELAY   CONSTANT 1              ACTION
                SECONDS  RESUME
        CREATE  ITEM4
        SEND    PROCESS3 ITEM4
        DELAY   CONSTANT 1              ACTION
                SECONDS  RESUME
        CREATE  ITEM6
        SEND    PROCESS3 ITEM5
        DELAY   CONSTANT 1              ACTION
```

```
                SECONDS  RESUME
        CREATE  ITEM6
        SEND    PROCESS3 ITEM6
        DELAY   CONSTANT 1                ACTION
                SECONDS  RESUME
        LOOP    NEXT     V_COUNT1         LOOP V_COUNT1 TIMES - NEXT
        END

LOCAL VARIABLES OF PROCESS INIT3
--------------------------------------------------------------------
    1 ITEM1     (I)    2 PROCESS3  (P)    3 DELAY     (A)    4 ITEM2     (I)
    5 ITEM3     (I)    6 ITEM4     (I)    7 ITEM5     (I)    8 ITEM6     (I)

GLOBAL VARIABLES OF PROCESS INIT3
--------------------------------------------------------------------
    1 V_COUNT1
PROCESS
MNEMONIC            DESCRIPTION
-------- -------- --------------------------------------------------
INIT4A              CREATE, SEND, LOOP 3 ITEMS

ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
-------- -------- -------- -------- -------- -------------------------
         START    ALL      NO
NEXT     ENTRY                               ENTRY
         CREATE   AITEM1   AITEM2   AITEM3   CREATE 3 ITEMS
         SEND     PROCESS4 AITEM1   AITEM2
                  AITEM3
         LOOP     NEXT     V_COUNT1         LOOP V_COUNT1 TIMES - NEXT
         END

LOCAL VARIABLES OF PROCESS INIT4A
--------------------------------------------------------------------
    1 AITEM1    (I)    2 AITEM2    (I)    3 AITEM3    (I)    4 PROCESS4  (P)

GLOBAL VARIABLES OF PROCESS INIT4A
--------------------------------------------------------------------
    1 V_COUNT1
PROCESS
MNEMONIC            DESCRIPTION
-------- -------- --------------------------------------------------
INIT4B              CREATE, SEND, LOOP WITH DELAY

ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
-------- -------- -------- -------- -------- -------------------------
```

```
PAGE     9
         START    ALL       NO
NEXT     ENTRY                                ENTRY
         DELAY    CONSTANT  10                 ACTION
                  SECONDS   RESUME
         CREATE   AITEM4                       CREATE
         SEND     PROCESS4  AITEM4
         LOOP     NEXT      V_COUNT1           LOOP V_COUNT1 TIMES - NEXT
         END

LOCAL VARIABLES OF PROCESS INIT4B
=================================================================
    1 DELAY      (A)     2 AITEM4     (I)     3 PROCESS4   (P)

GLOBAL VARIABLES OF PROCESS INIT4B
=================================================================
    1 V_COUNT1
PROCESS
MNEMONIC           DESCRIPTION
======== ======== ==================================================
PLONG1


ENTRY    OPCODE   PARM      PARM      PARM      COMMENT
======== ======== ======== ======== ======== ========================
         START    ALL       NO
         ALLOC    CPU1      6         PARTIAL
                  $PRIORTY
         DELAY    CONSTANT  6
                  SECONDS   RESUME
         DEALLOC  CPU1      3
         DELAY    CONSTANT  5
                  SECONDS   RESUME
         DEALLOC  CPU1      2
         END

LOCAL VARIABLES OF PROCESS PLONG1
=================================================================
    1 CPU1       (R)     2 DELAY      (A)
PROCESS
MNEMONIC           DESCRIPTION
======== ======== ==================================================
PLONG2


ENTRY    OPCODE   PARM      PARM      PARM      COMMENT
======== ======== ======== ======== ======== ========================
         START    ALL       NO
         ALLOC    CPU2      6         PARTIAL
                  $PRIORTY
```

```
          DELAY     CONSTANT 5
                    SECONDS  RESUME
          DEALLOC   CPU2     3
          DELAY     CONSTANT 5
                    SECONDS  RESUME
          DEALLOC   CPU2     2
          END
```

LOCAL VARIABLES OF PROCESS PLONG2

```
    1 CPU2       (R)     2 DELAY      (A)
```

```
PROCESS
MNEMONIC            DESCRIPTION
======== ======== ========================================================
PLONG3
```

```
ENTRY     OPCODE    PARM      PARM      PARM      COMMENT
========  ========  ========  ========  ========  =========================
          START     ALL       NO
          ALLOC     CPU3      5         PARTIAL
                    $PRIORTY
          DELAY     CONSTANT  5
                    SECONDS   RESUME
          DEALLOC   CPU3      3
          DELAY     CONSTANT  5
                    SECONDS   RESUME
          DEALLOC   CPU3      2
          END
```

LOCAL VARIABLES OF PROCESS PLONG3

```
    1 CPU3       (R)     2 DELAY      (A)
```

```
PROCESS
MNEMONIC            DESCRIPTION
======== ======== ========================================================
PRESETR3
```

```
ENTRY     OPCODE    PARM      PARM      PARM      COMMENT
========  ========  ========  ========  ========  =========================
          START     ALL       NO
LOOP      ENTRY
          DELAY     CONSTANT  2
                    SECONDS   RESUME
LOOP1     ENTRY
          RESET     CPU3      -3
          DELAY     CONSTANT  2
                    SECONDS   RESUME
```

```
PAGE   11
         RESET    CPU3     3
         DELAY    CONSTANT 28
                  SECONDS  RESUME
         LOOP     LOOP1    20
         END

LOCAL VARIABLES OF PROCESS PRESETR3
================================================================================
   1 DELAY     (A)    2 CPU3      (R)
PROCESS
MNEMONIC          DESCRIPTION
======== ======== ============================================================
PROCESS1          GIVEN-TIME, ACTION DELAY


ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ==========================
         START    ALL      NO
         GIVEN    TIME
         DELAY    CONSTANT TIME              ACTION
                  SECONDS  RESUME
         END

LOCAL VARIABLES OF PROCESS PROCESS1
================================================================================
   1 TIME              2 DELAY     (A)
PROCESS
MNEMONIC          DESCRIPTION
======== ======== ============================================================
PROCESS2          ACTION DELAY (CONSTANT)

ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ==========================
         START    ALL      NO
         DELAY    CONSTANT 10
                  SECONDS  RESUME
         END

LOCAL VARIABLES OF PROCESS PROCESS2
================================================================================
   1 DELAY     (A)
PROCESS
MNEMONIC          DESCRIPTION
======== ======== ============================================================
PROCESS3          RECEIVE AND DESTROY ITEMS -- SERIAL # NO MATCH

ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
```

```
======== ======== ======== ======== ========= ========================
         START    ALL      NO
         RECEIVE  ITEM1    ITEM2    ITEM3
                  ITEM4    ITEM5    ITEM6
         DESTROY  ITEM1    ITEM2    ITEM3     DESTROY ALL SIX ITEMS
                  ITEM4    ITEM5    ITEM6
         END

LOCAL VARIABLES OF PROCESS PROCESS3
=================================================================
    1 ITEM1     (I)    2 ITEM2     (I)    3 ITEM3     (I)    4 ITEM4     (I)
    5 ITEM5     (I)    6 ITEM6     (I)
PROCESS
MNEMONIC           DESCRIPTION
======== ======== ================================================
PROCESS4           RECEIVE AND DESTROY 4 ITEMS -- SERIAL # MATCH


ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ========================
         START    ALL      NO       MATCH
         RECEIVE  AITEM1   AITEM2   AITEM3
                  AITEM4
         DESTROY  AITEM1   AITEM2   AITEM3   DESTROY 4 ITEMS
                  AITEM4
         END

LOCAL VARIABLES OF PROCESS PROCESS4
=================================================================
    1 AITEM1    (I)    2 AITEM2    (I)    3 AITEM3    (I)    4 AITEM4    (I)

PROCESS
MNEMONIC           DESCRIPTION
======== ======== ================================================
PSHRT1


ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ========================
         START    ALL      NO
         ALLOC    CPU1     5        PARTIAL
                  $PRIORTY
         DELAY    CONSTANT 1
                  SECONDS  RESUME
         DEALLOC  CPU1     1
         DELAY    CONSTANT 1
                  SECONDS  RESUME
         DEALLOC  CPU1     1
         DELAY    CONSTANT 1
```

```
                    SECONDS  RESUME
          DEALLOC   CPU1     1
          DELAY     CONSTANT 1
                    SECONDS  RESUME
          DEALLOC   CPU1     1
          DELAY     CONSTANT 1
                    SECONDS  RESUME
          DEALLOC   CPU1     1
          END

LOCAL VARIABLES OF PROCESS PSHRT1
================================================================================
    1 CPU1       (R)     2 DELAY      (A)
PROCESS
MNEMONIC            DESCRIPTION
======== ======== ========================================================
PSHRT2


ENTRY     OPCODE    PARM     PARM     PARM     COMMENT
========  ========  =======  =======  =======  =========================
          START     ALL      NO
          ALLOC     CPU2     5        PARTIAL
                    1
          DELAY     CONSTANT 1
                    SECONDS  RESUME
          DEALLOC   CPU2     1
          DELAY     CONSTANT 1
                    SECONDS  RESUME
          DEALLOC   CPU2     1
          DELAY     CONSTANT 1
                    SECONDS  RESUME
          DEALLOC   CPU2     1
          DELAY     CONSTANT 1
                    SECONDS  RESUME
          DEALLOC   CPU2     1
          DELAY     CONSTANT 1
                    SECONDS  RESUME
          DEALLOC   CPU2     1
          END

LOCAL VARIABLES OF PROCESS PSHRT2
================================================================================
    1 CPU2       (R)     2 DELAY      (A)
PROCESS
MNEMONIC            DESCRIPTION
======== ======== ========================================================
PSHRT3
```

```
PAGE    14

ENTRY     OPCODE    PARM      PARM      PARM      COMMENT
========  ========  ========  ========  ========  ============================
          START     ALL       NO
          ALLOC     CPU3      5         PARTIAL
                    2
          DELAY     CONSTANT  1
                    SECONDS   RESUME
          DEALLOC   CPU3      1
          DELAY     CONSTANT  1
                    SECONDS   RESUME
          DEALLOC   CPU3      1
          DELAY     CONSTANT  1
                    SECONDS   RESUME
          DEALLOC   CPU3      1
          DELAY     CONSTANT  1
                    SECONDS   RESUME
          DEALLOC   CPU3      1
          DELAY     CONSTANT  1
                    SECONDS   RESUME
          DEALLOC   CPU3      1
          END

LOCAL VARIABLES OF PROCESS PSHRT3
=================================================================
    1 CPU3       (R)     2 DELAY      (A)
PROCESS
MNEMONIC            DESCRIPTION
========  ========  ============================================
TRACE


ENTRY     OPCODE    PARM      PARM      PARM      COMMENT
========  ========  ========  ========  ========  ============================
          START     ALL       NO
          COMPARE   C_TRACE             EQ
                    0                   END
          TRACE     ON
          TRACE     ON
END       ENTRY
          END

GLOBAL VARIABLES OF PROCESS TRACE
=================================================================
    1 C_TRACE

LOAD DEFINITION.....

LOAD
```

PAGE 15

MNEMONIC	DESCRIPTION
LLOAD1	

LOAD	NODES

PROCESS MNEMONIC	MAX #	SCHEDULE METHOD	MEAN	DELTA	UNITS	PRIORITY
PLONG1	100	INTERVAL	15		SECONDS	2
PSHRT1	100	INTERVAL	6		SECONDS	2

LOAD MNEMONIC	DESCRIPTION
LLOAD2	

LOAD	NODES

PROCESS MNEMONIC	MAX #	SCHEDULE METHOD	MEAN	DELTA	UNITS	PRIORITY
PLONG2	100	INTERVAL	15		SECONDS	2
PSHRT2	100	INTERVAL	6		SECONDS	2

LOAD MNEMONIC	DESCRIPTION
LLOAD3	

LOAD	NODES

PROCESS MNEMONIC	MAX #	SCHEDULE METHOD	MEAN	DELTA	UNITS	PRIORITY
PLONG3	100	INTERVAL	15		SECONDS	2
PRESETR3	1	START			SECONDS	1
PSHRT3	100	INTERVAL	6		SECONDS	2

LOAD MNEMONIC	DESCRIPTION
LOAD1	

LOAD	NODES

PROCESS MNEMONIC	MAX #	SCHEDULE METHOD	MEAN	DELTA	UNITS	PRIORITY
INIT1	1	START			SECONDS	0
INIT2	1	START			SECONDS	0

SCENARIO DEFINITION....

SCENARIO MNEMONIC	DESCRIPTION
TEST1	

PERIOD LENGTH	PERIOD UNITS	OUTPUT UNITS
100	SECONDS	SECONDS

PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC
1						

TRIGGER MNEMONIC	TIME TO SCHEDULE	SCHEDULE UNITS	SCHEDULE PRIORITY	TRIGGER MNEMONIC	TIME TO SCHEDULE	SCHEDULE UNITS	SCHEDULE PRIORITY
INIT1	0	SECONDS	0	INIT2	0	SECONDS	0
INIT3	0	SECONDS	0	INIT4A	0	SECONDS	0
INIT4B	0	SECONDS	0	ATRIGGER	0	SECONDS	0
ACYCLIC	0	SECONDS	0	LLOAD3	0	SECONDS	2
LLOAD1	0	SECONDS	2	LLOAD2	0	SECONDS	2

0 ERRORS WERE DETECTED DURING MODEL INITIALIZATION

APPENDIX B

Test 1 Model - File Verification

TESTDBB.DBF Listing

```
$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$
$                    S I M U L A T I O N   R E P O R T                         $
$                              AISIM VERSION 5.0                                 $
$                          HUGHES AIRCRAFT COMPANY                               $
$                                 05/15/87                                       $
$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

                        04/20/1987        19:25:39

                              TESTDBB

TEST KEYWORDS, PARAMETER PASSING, AND READ/WRITE.




GLOBAL CONSTANT DEFINITION.....

CONSTANT INITIAL
MNEMONIC VALUE    COMMENT
======== ======== ================================================

FILE DEFINITION

FILE
MNEMONIC          COMMENT
-------- -------- ------------------------------------------------
FILE1    FILE TO READ FROM
FILE2    FILE TO WRITE TO

TABLE DEFINITION....


GLOBAL VARIABLE DEFINITION.....

VARIABLE INITIAL
MNEMONIC VALUE    COMMENT
======== ======== ================================================
V_CHNL   0        GLOBAL VARIABLE TO HOLD CHANNEL
V_CLOCK1 0        GLOBAL VARIABLE OF CLOCK FIRST SAMPLE
V_CLOCK2 0        GLOBAL VARIABLE OF CLOCK SECOND SAMPLE
V_CNODE  A        GLOBAL VARIABLE OF CURRENT NODE INITIALIZED TO RES
V_NXTND  B        GLOBAL VARIABLE INITIALIZED TO RESOURCE
```

ITEM DEFINITION

QUEUE DEFINITION

QUEUE MNEMONIC	MAXIMUM SIZE	COMMENT

RESOURCE DEFINITION

RESOURCE MNEMONIC	TOTAL # UNITS	INITIAL # UNITS	DESCRIPTION
A	1	1	RESOURCE FOR NODE
B	1	1	RESOURCE FOR NODE
C	1	1	RESOURCE FOR NODE
C1	1	1	RESOURCE FOR CON
CHNL	1	1	RESOURCE FOR CON

ATTR NAME	INITIAL VALUE
SPEED	0

ARCHITECTURE LEGAL PATH DEFINITION

FROM DEVICE	TO DEVICE	NEXT DEVICE	VIA LINK
A	B	B	CHNL
B	A	A	CHNL
B	C	C	C1
C	B	B	C1

ACTION DEFINITION

ACTION MNEMONIC	COMMENT
ADELAY	DELAY AT PROCESS A
BDELAY	DELAY IN PROCESS B
REPLY	TEST DELAY IN PROC FOR REPLY
TRANSFER	CHANNEL TRANSFER DELAY

PROCESS DEFINITION

PROCESS
MNEMONIC DESCRIPTION
APROC

ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
	START	A	NO		
	ALLOC	$CNODE $PRIORTY	1	ALL	TEST $CNODE IN ALLOC CNTX
	ADELAY	CONSTANT SECONDS	$CLOCK RESUME		TEST $CLOCK IN ACTION MEAN
	ADELAY	CONSTANT SECONDS	0 RESUME		
	ASSIGN	$CNODE L_CNODE			TEST ASSIGNMENT OF $CNODE
	ASSIGN	$CNODE V_CNODE			TEST ASSIGNMENT $CNODE
	READ	FILE1 $CNODE	EOF		TEST READING OF $CNODE
	WRITE	FILE2 $CNODE			TEST WRITING OF $CNODE
	ASSIGN	BPROC NEXT			TEST PROCESS TO LOCAL
	ASSIGN	$NODE LB1	NEXT		TEST $NODE EVALUATION
	ASSIGN	$NODE LB2	BPROC		TEST $NODE GLOBAL TO LOCAL
	ASSIGN	$NODE LB3	EPROC		TEST $NXTNODE
	COMPARE	LB1 LB2		EQ N1	TEST ASSIGNMENT & COMPARE
	BRANCH	N1	100		
N1	ENTRY				
	ASSIGN	$NXTNODE LB3	LB1		TEST $NXTNODE
	ASSIGN	$NXTNODE V_NEXT	LB2		
	COMPARE	LB3 V_NEXT		EQ N2	TEST $NXTNODE TO LOCAL
	BRANCH	N2	100		
N2	ENTRY				
	ASSIGN	$LINK L1_CHNL	B		TEST $LINK TO LOCAL RES.
	ASSIGN	$LINK L2_CHNL	LB3		TEST $LINK TO LOCAL
	ASSIGN	$LINK	V_NEXT		TEST $LINK GLOBAL

```
                V_CHNL
        COMPARE  $CNODE              EQ      TEST COMPARE CONTXT $CNODE
                 $CNODE              A1
        BRANCH   A1        100
A1      ENTRY
        COMPARE  L_CNODE             EQ      TEST CONTEXT $CNODE TO LOC
                 $CNODE              A2
        BRANCH   A2        100
A2      ENTRY
        COMPARE  $CNODE              EQ      TEST CONTEXT $CNODE-GLOBAL
                 V_CNODE             A3
        BRANCH   A3        100
A3      ENTRY
        COMPARE  L_NXTND             EQ      TEST $NXTNODE GLOBAL-LOCAL
                 V_NXTND             A4
        BRANCH   A4        100
A4      ENTRY
        COMPARE  L1_CHNL             EQ      TEST $LINK COMPARE
                 L2_CHNL             A5
        BRANCH   A5        100
A5      ENTRY
        COMPARE  V_CHNL              EQ      TEST ASSIGN $LINK
                 L1_CHNL             A6
        BRANCH   A6        100
A6      ENTRY
        TEST     L2_CHNL   A7                 AVAILABILITY OF $LINK
        BRANCH   A7        100
A7      ENTRY
        ALLOC    L2_CHNL   1         ALL     SWITCH BUSY FLAG ON CHNL
                 $PRIORTY
        READ     FILE1     EOF                TEST READING ALL ATTRIBUTE
                 L2_CHNL   []
        WRITE    FILE2                        TEST WRITING SPEED ATTR OF
                 L2_CHNL   SPEED
        READ     FILE1     EOF                TEST READING RESOURCE NAME
                 RESOURCE
        WRITE    FILE2                        TEST WRITING LOCAL
                 RESOURCE
        TEST     L2_CHNL   A8                 TEST SHOULD FAIL
        BRANCH   A8        100
A8      ENTRY
        DEALLOC  $CNODE    1                  RELEASE CURRENT NODE
        TRANSFER CONSTANT  $CLOCK             TRANSFER DATA OVER CHANNEL
                 SECONDS   RESUME
        DEALLOC  L2_CHNL   1                  RELEASE CURRENT CHANNEL
        WRITE    FILE2                        WRITE $PRIORTY
                 $PRIORTY
        WRITE    FILE2                        WRITE $CLOCK
                 $CLOCK
```

```
PAGE     5
          WRITE     FILE2                          WRITE $TASK
                    $TASK
          CALL      BPROC     NOWAIT    0          TEST PARAMETER BINDING
          GIVEN     $CLOCK    $NODE     $TASK
EOF       ENTRY
          SUSPEND                                  TEST BINDING OF $TASK
          END

LOCAL VARIABLES OF PROCESS APROC
------------------------------------------------------------------------
     1 ADELAY     (A)     2 L_CNODE              3 BPROC      (P)     4 NEXT
     5 LB1                6 LB2                  7 EPROC              8 LB3
     9 V_NEXT            10 B           (R)     11 L1_CHNL           12 L2_CHNL
    13 L_NXTND           14 RESOURCE    (X)     15 TRANSFER  (A)

GLOBAL VARIABLES OF PROCESS APROC
------------------------------------------------------------------------
     1 V_CNODE    (R)     2 V_CHNL               3 V_NXTND    (R)
PROCESS
MNEMONIC            DESCRIPTION
------------------------------------------------------------------------
BPROC

ENTRY     OPCODE    PARM      PARM      PARM      COMMENT
          START     B         NO
          GIVEN     LCLOCK    LNODE     LTASK
          ASSIGN    $NODE     BPROC               LET CURRENT NODE REGISTER
                    $CNODE
          ALLOC     $CNODE    1         ALL       MAKE B BUSY
                    $PRIORTY
          ADELAY    CONSTANT $CLOCK
                    SECONDS   RESUME
          TEST      $CNODE    B1                  TEST AVAILABILITY OF B
          BRANCH    B1        100
B1        ENTRY
          DEALLOC   $CNODE    1
          EVAL      L1                            TEST EVAL CONTEXT $CLOCK
                    0+$CLOCK
          EVAL      L2
                    $CLOCK-0
          COMPARE   L1                    EQ
                    L2                    B2
          BRANCH    B2        100
B2        ENTRY
          EVAL      V_CLOCK1                      EVAL GLOBAL VARIABLE TEST
                    0+$CLOCK
          EVAL      V_CLOCK2
```

```
PAGE    8
                @ $CLOCK
        EVA     V_CLOCK2                        EVAL ABSOLUTE $CLOCK
                ABSOLUTE(V_CLOCK2)
        COMPARE V_CLOCK1        EQ              TEST ARITHMETIC CONTEXT
                V_CLOCK2        B3
        BRANCH  B3      100
B3      ENTRY
        ALLOC   LNODE   1       ALL             ALLOCATE PASSED PARAMETER
                $PRIORITY
        REPLY   CONSTANT 10
                SECONDS RESUME
        TEST    LNODE   B4                      TEST AVAILABILITY OF RES
        BRANCH  B4      100
B4      ENTRY
        DEALLOC LNODE   1                       FREE UP CHANNEL
        RESUME  LTASK                   RESTART PARENT PROCESS
        END

LOCAL VARIABLES OF PROCESS BPROC

    1 LCLOCK            2 LNODE             3 LTASK             4 BPROC     (P)
    5 BDELAY    (A)     6 L1                7 L2                8 REPLY     (A)


GLOBAL VARIABLES OF PROCESS BPROC

    1 V_CLOCK1          2 V_CLOCK2
PROCESS
MNEMONIC            DESCRIPTION

TRACE               TURN ON THE TRACE CAPABILITY


ENTRY   OPCODE  PARM    PARM    PARM    COMMENT

        START   ALL     NO
        TRACE   ON
        TRACE   ON
        END

LOAD DEFINITION

LOAD
MNEMONIC            DESCRIPTION

LOAD1               INITIATE BPROC TEST CASE AT START
        LOAD    NODES

        A
```

PAGE

PROCESS MNEMONIC	MAX #	SCHEDULE METHOD	MEAN	DELTA	UNITS	PRIORITY
APROC	1	START			SECONDS	0

SCENARIO DEFINITION

SCENARIO MNEMONIC	DESCRIPTION
SCEN	

PERIOD LENGTH	PERIOD UNITS	OUTPUT UNITS
100	SECONDS	SECONDS

PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC
ONE						

TRIGGER MNEMONIC	TIME TO SCHEDULE	SCHEDULE UNITS	SCHEDULE PRIORITY	TRIGGER MNEMONIC	TIME TO SCHEDULE	SCHEDULE UNITS	SCHEDULE PRIORITY
TRACE	0	SECONDS	5	LOAD1	0	SECONDS	0

0 ERRORS WERE DETECTED DURING MODEL INITIALIZATION

APPENDIX B

Test 1 Model - File Verification

TESTDBC.DBF Listing

```
$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$
$                    S I M U L A T I O N   R E P O R T                        $
$                              AISIM VERSION 5.0                                $
$                          HUGHES AIRCRAFT COMPANY                              $
$                                 05/15/87                                      $
$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

                        04/20/1987        19:26:26

                            TESTDBC

TEST BATCH MODE PROCESSING




GLOBAL CONSTANT DEFINITION.....

CONSTANT INITIAL
MNEMONIC VALUE    COMMENT
======== ======== ==================================================

FILE DEFINITION.....

FILE
MNEMONIC          COMMENT
======== ======== ==================================================

TABLE DEFINITION....


GLOBAL VARIABLE DEFINITION.....

VARIABLE INITIAL
MNEMONIC VALUE    COMMENT
======== ======== ==================================================
GAMMA1   300      AVERAGE LENGTH OF MESSAGES
GAMMA2   .001     TRANSMISSION & RECEIVING TIMES IN SECONDS PER BYTE

ITEM DEFINITION......

ITEM                        DESCRIPTION
======== ================== ==========================================
```

MSG — MESSAGE ITEM SENT FROM PRODUCE TO CONSUME

ATTR. NAME	INITIAL VALUE
LENGTH	$LENGTH

QUEUE DEFINITION.....

QUEUE MNEMONIC	MAXIMUM SIZE	COMMENT
BUFFER	INFINITE	BUFFER FOR MESSAGES AWAITING PROCESSING

RESOURCE DEFINITION.....

RESOURCE MNEMONIC	TOTAL # UNITS	INITIAL # UNITS	DESCRIPTION
SEMA	1	1	SEMA INDICATES IF TRANSMIT BUSY OR NOT
STATION1	1	1	LOCATION OF TRANSMITTING PROCESS
STATION2	1	1	LOCATION OF RECEIVING PROCESS

ARCHITECTURE LEGAL PATH DEFINITION

FROM DEVICE	TO DEVICE	NEXT DEVICE	VIA LINK

ACTION DEFINITION...

ACTION MNEMONIC	COMMENT
READ_MSG	DELAY AT RECEIVE TO PROCESS MESSAGE
SENDING	DELAY AT TRANSMIT TO DELIVER MESSAGE TO BUFFER

PROCESS DEFINITION.....

PROCESS MNEMONIC	DESCRIPTION
RECEIVE	RECEIVE MESSAGES FROM TRANSMIT

ENTRY	OPCODE	PARM	PARM	PARM	COMMENT

```
PAGE     3
         START    STATION2 NO
         TEST     SEMA     ABORT              TEST FOR BUFFER USE
         REMOVE   FIRST    MSG      BUFFER    REMOVE BY FIFO DISCIPLINE
         COMPARE  MSG                EQ        WHEN MSG=0 BUFFER IS EMPTY
                  0                  ABORT
         ASSIGN   MSG      LENGTH             MESSAGE LENGTH IS READ
                  ALPHA
         EVAL     MU                          CALCULATE RECEPTION TIME
                  ALPHA*GAMMA2
         READ_MSG CONSTANT MU                 TIME TO PROCESS MESSAGE
                  SECONDS  RESUME
         DESTROY  MSG                         MSG ELIMINATED FROM SYSTEM
ABORT    ENTRY                                ENTER FROM COMPARE & TEST
         END

LOCAL VARIABLES OF PROCESS RECEIVE
==========================================================================
    1 SEMA       (R)     2 MSG        (I)     3 BUFFER     (Q)     4 ALPHA
    5 MU                 6 READ_MSG   (A)

GLOBAL VARIABLES OF PROCESS RECEIVE
==========================================================================
    1 GAMMA2
PROCESS
MNEMONIC            DESCRIPTION
======== ======== ====================================================
TRANSMIT            TRANSMITTING MESSAGES TO RECEIVER


ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ========================
         START    STATION1 NO
         ALLOC    SEMA     1        ALL      RESOURCE FOR SENDING MSG
                  $PRIORTY
         CREATE   MSG                        INTRODUCE MSG INTO SYSTEM
         EVAL     ALPHA                      GENERATE RANDOM NUMBER
                  RANDOM
         EVAL     ALPHA                      AVERAGE TIME ALPHA
                  ALPHA*GAMMA1
         ASSIGN   ALPHA                      SET MESSAGE LENGTH
                  MSG      LENGTH
         EVAL     MU                         CALCULATE TRANSMIT TIME
                  ALPHA*GAMMA2
         SENDING  CONSTANT MU                 TIME CONSUMED TRANSMITTING
                  SECONDS  RESUME
         FILE     MSG      LAST     BUFFER   STORE MSG ON BUFFER
         DEALLOC  SEMA     1                 RELEASE RESOURCE SEMA
         END
```

PAGE 4

LOCAL VARIABLES OF PROCESS TRANSMIT

1 SEMA	(R)	2 MSG	(I)	3 ALPHA		4 MU	
5 SENDING	(A)	6 BUFFER	(Q)				

GLOBAL VARIABLES OF PROCESS TRANSMIT

1 GAMMA1	2 GAMMA2

LOAD DEFINITION.....

LOAD MNEMONIC	DESCRIPTION
LD1	TRANSMIT RATE=100, EXPONENT, PRIORITY=0

LOAD	NODES
STATION1	

PROCESS MNEMONIC	MAX #	SCHEDULE METHOD	MEAN	DELTA	UNITS	PRIORITY
TRANSMIT	100	EXPONENT	1	1	SECONDS	0

LOAD MNEMONIC	DESCRIPTION
LD11	RECEIVE RATE = 1000, INTERVAL,PRIORITY=0,MEAN=1

LOAD	NODES
STATION2	

PROCESS MNEMONIC	MAX #	SCHEDULE METHOD	MEAN	DELTA	UNITS	PRIORITY
RECEIVE	1000	INTERVAL	1		SECONDS	0

LOAD MNEMONIC	DESCRIPTION
LD2	TRANSMIT RATE=100,EXPONENT,PRIORITY=0,MEAN=2

LOAD	NODES
STATION1	

PROCESS MNEMONIC	MAX #	SCHEDULE METHOD	MEAN	DELTA	UNITS	PRIORITY

```
PAGE     5
         TRANSMIT 50       EXPONENT 2                    SECONDS  0

LOAD
MNEMONIC           DESCRIPTION
======== ======== ==========================================================
LD22               RECEIVE RATE=1000,INTERVAL,PRIORITY=1,MEAN=.5
         LOAD      NODES
         ======== ======== ======== ========
         STATION2


         PROCESS             SCHEDULE
         MNEMONIC MAX #      METHOD    MEAN      DELTA     UNITS     PRIORITY
         ======== ========  ========  ========  ========  ========  ========
         RECEIVE  1000       INTERVAL .5                   SECONDS   1
LOAD
MNEMONIC           DESCRIPTION
======== ======== ==========================================================
LD3                TRANSMIT RATE=150,EXPONENT,PRIORITY=0,MEAN=.5
         LOAD      NODES
         ======== ======== ======== ========
         STATION1


         PROCESS             SCHEDULE
         MNEMONIC MAX #      METHOD    MEAN      DELTA     UNITS     PRIORITY
         ======== ========  ========  ========  ========  ========  ========
         TRANSMIT 150        EXPONENT .5                   SECONDS   0
LOAD
MNEMONIC           DESCRIPTION
======== ======== ==========================================================
LD33               RECEIVE RATE=1000,INTERVAL,PRIORITY=0,MEAN=2
         LOAD      NODES
         ======== ======== ======== ========
         STATION2


         PROCESS             SCHEDULE
         MNEMONIC MAX #      METHOD    MEAN      DELTA     UNITS     PRIORITY
         ======== ========  ========  ========  ========  ========  ========
         RECEIVE  1000       INTERVAL 2                    SECONDS   0

SCENARIO DEFINITION....

SCENARIO
MNEMONIC           DESCRIPTION
======== ======== ==========================================================
SCNR1              SCENARIO WITH LOAD1 (=LD1),LOAD2 (=LD2),LOAD3 (=LD3)

PERIOD   PERIOD    OUTPUT
```

PAGE LENGTH	UNITS	UNITS
100	SECONDS	SECONDS

	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC
	0	100	200	300	400	500	600
	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC
	700	800	900	1000	1100	1200	1300

TRIGGER MNEMONIC	TIME TO SCHEDULE	SCHEDULE UNITS	SCHEDULE PRIORITY	TRIGGER MNEMONIC	TIME TO SCHEDULE	SCHEDULE UNITS	SCHEDULE PRIORITY
LD1	0	SECONDS	1	LD11	0	SECONDS	0
LD2	100	SECONDS	1	LD22	100	SECONDS	0
LD3	200	SECONDS	1	LD33	200	SECONDS	0
LD1	300	SECONDS	1	LD11	300	SECONDS	0
LD22	400	SECONDS	0				

0 ERRORS WERE DETECTED DURING MODEL INITIALIZATION

APPENDIX B

Test 1 Model - File Verification

TESTDBD.DBF Listing

```
$$$
```

ITEM		DESCRIPTION
MSG		MESSAGE FOR INTERNODE COMMUNICATION
	ATTR. NAME	INITIAL VALUE
	CNODE	$CNODE
	FNODE	$CNODE
	LENGTH	99999999
	RPROC	$ERROR
	RPROCPRI	99999999
	TNODE	$CNODE
	TYPE	$REQNORE

QUEUE DEFINITION.....

QUEUE MNEMONIC	MAXIMUM SIZE	COMMENT

RESOURCE DEFINITION.....

RESOURCE MNEMONIC	TOTAL # UNITS	INITIAL # UNITS	DESCRIPTION
AB1	1	1	RESOURCE FOR NODE
	ATTR. NAME	INITIAL VALUE	
	M_ROUTE	8	
AB2	1	1	RESOURCE FOR NODE
	ATTR. NAME	INITIAL VALUE	
	M_ROUTE	8	
CH1_A	1	1	RESOURCE FOR CHANNEL CONNECTOR
	ATTR. NAME	INITIAL VALUE	
	RATE	VRATE	
CH1_B	1	1	RESOURCE FOR CHANNEL CONNECTOR
	ATTR. NAME	INITIAL VALUE	

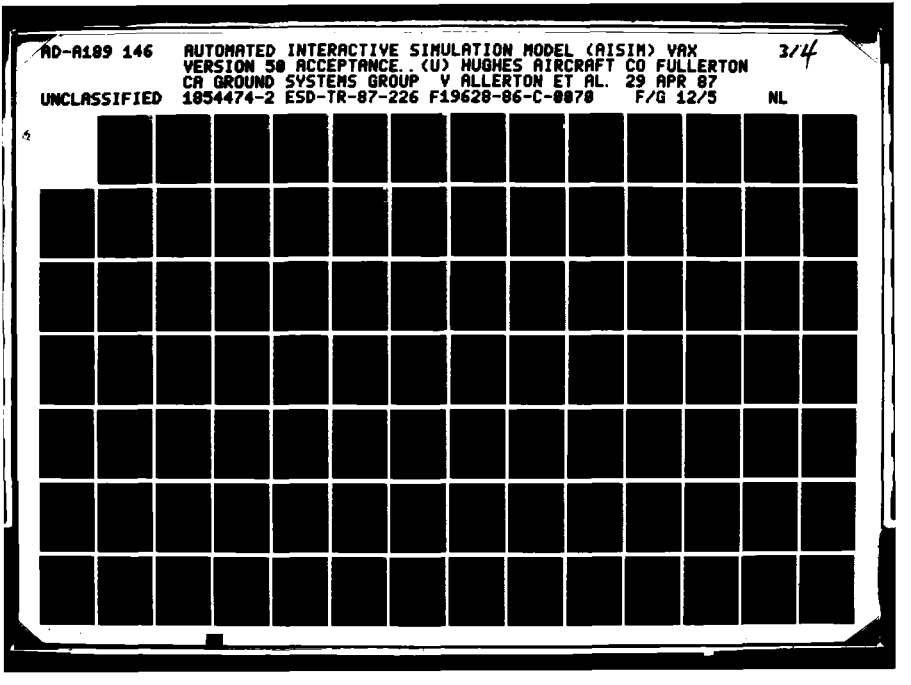
```
                ======== ========
                RATE     VRATE

CH2_A           1        1        RESOURCE FOR CHANNEL CONNECTOR
                ATTR.    INITIAL
                NAME     VALUE
                ======== ========
                RATE     VRATE

CH2_B           1        1        RESOURCE FOR CHANNEL CONNECTOR
                ATTR.    INITIAL
                NAME     VALUE
                ======== ========
                RATE     VRATE

CH3_A           1        1        RESOURCE FOR CHANNEL CONNECTOR
                ATTR.    INITIAL
                NAME     VALUE
                ======== ========
                RATE     0.4069

CH3_B           1        1        RESOURCE FOR CHANNEL CONNECTOR
                ATTR.    INITIAL
                NAME     VALUE
                ======== ========
                RATE     0.4069

CH4_A           1        1        RESOURCE FOR CHANNEL CONNECTOR
                ATTR.    INITIAL
                NAME     VALUE
                ======== ========
                RATE     0.4069

CH4_B           1        1        RESOURCE FOR CHANNEL CONNECTOR
                ATTR.    INITIAL
                NAME     VALUE
                ======== ========
                RATE     0.4069

CH5_A           1        1        RESOURCE FOR CHANNEL CONNECTOR
                ATTR.    INITIAL
                NAME     VALUE
                ======== ========
                RATE     0.4069

CH5_B           1        1        RESOURCE FOR CHANNEL CONNECTOR
                ATTR.    INITIAL
                NAME     VALUE
                ======== ========
```

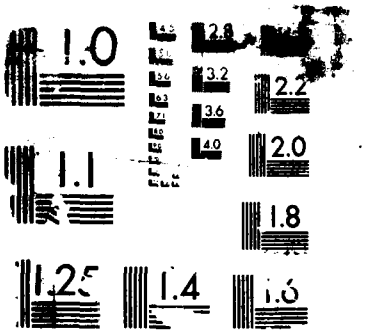
```
          RATE      0.4069

CH8_A     1         1         RESOURCE FOR CHANNEL CONNECTOR
          ATTR      INITIAL
          NAME      VALUE
          ========  ========
          RATE      VRATE

CH8_B     1         1         RESOURCE FOR CHANNEL CONNECTOR
          ATTR.     INITIAL
          NAME      VALUE
          ========  ========
          RATE      VRATE

CH7_A     1         1         RESOURCE FOR CHANNEL CONNECTOR
          ATTR.     INITIAL
          NAME      VALUE
          ========  ========
          RATE      VRATE

CH7_B     1         1         RESOURCE FOR CHANNEL CONNECTOR
          ATTR.     INITIAL
          NAME      VALUE
          ========  ========
          RATE      VRATE

CH8_A     1         1         RESOURCE FOR CHANNEL CONNECTOR
          ATTR.     INITIAL
          NAME      VALUE
          ========  ========
          RATE      VRATE

CH8_B     1         1         RESOURCE FOR CHANNEL CONNECTOR
          ATTR      INITIAL
          NAME      VALUE
          ========  ========
          RATE      VRATE

CH9_A     1         1         RESOURCE FOR CHANNEL CONNECTOR
          ATTR.     INITIAL
          NAME      VALUE
          ========  ========
          RATE      VRATE

CH9_B     1         1         RESOURCE FOR CHANNEL CONNECTOR
          ATTR.     INITIAL
          NAME      VALUE
          ========  ========
          RATE      VRATE
```

```
CHQ          1          1          COMMAND HEAD-QUARTERS
             ATTR.      INITIAL
             NAME       VALUE
             ========== ==========
             M_ROUTE    8

DK1          1          1          DISK FOR COMMAND HEAD-QUARTERS
             ATTR.      INITIAL
             NAME       VALUE
             ========== ==========
             LATDELTA   15
             LATENCY    15
             M_ROUTE    0
             SEEK       TIME1
             SPEED      20000

HQ           1          1          HEAD-QUARTERS
             ATTR.      INITIAL
             NAME       VALUE
             ========== ==========
             M_ROUTE    8

L3           1          1          RESOURCE FOR NODE
             ATTR.      INITIAL
             NAME       VALUE
             ========== ==========
             M_ROUTE    8

SW1          1          1          SWITCH BETWEEN AIRBASES AND OTHER TWO SWITCHES (1&2)
             ATTR.      INITIAL
             NAME       VALUE
             ========== ==========
             M_ROUTE    8

SW2          1          1          SWITCH BETWEEN SWITCH 1 & 3 AND HQ
             ATTR.      INITIAL
             NAME       VALUE
             ========== ==========
             M_ROUTE    8

SW3          1          1          SWITCH BETWEEN SWITCH 1 & 2 AND CHQ
             ATTR.      INITIAL
             NAME       VALUE
             ========== ==========
             M_ROUTE    8

ARCHITECTURE LEGAL PATH DEFINITION
```

PAGE

FROM DEVICE	TO DEVICE	NEXT DEVICE	VIA LINK
AB1	AB2	SW1	CH1 A
AB1	CHQ	SW1	CH1 A
AB1	DK1	SW1	CH1 A
AB1	HQ	SW1	CH1 A
AB1	L3	SW1	CH1 A
AB1	SW1	SW1	CH1 A
AB1	SW2	SW1	CH1 A
AB1	SW3	SW1	CH1 A
AB2	AB1	SW1	CH2 A
AB2	CHQ	SW1	CH2 A
AB2	DK1	SW1	CH2 A
AB2	HQ	SW1	CH2 A
AB2	L3	SW1	CH2 A
AB2	SW1	SW1	CH2 A
AB2	SW2	SW1	CH2 A
AB2	SW3	SW1	CH2 A
CHQ	AB1	SW1	CH8 A
CHQ	AB2	SW1	CH8 A
CHQ	DK1	DK1	CH4 A
CHQ	HQ	SW1	CH8 A
CHQ	L3	SW1	CH8 A
CHQ	SW1	SW1	CH5 A
CHQ	SW2	SW1	CH8 A
CHQ	SW3	SW1	CH8 A
DK1	AB1	CHQ	CH9 B
DK1	AB2	CHQ	CH9 B
DK1	CHQ	CHQ	CH9 B
DK1	HQ	CHQ	CH9 B
DK1	L3	HQ	CH9 B
DK1	SW1	CHQ	CH9 B
DK1	SW2	CHQ	CH9 B
DK1	SW3	CHQ	CH9 B
HQ	AB1	SW2	CH7 A
HQ	AB2	SW2	CH7 A
HQ	CHQ	SW2	CH7 A
HQ	DK1	SW2	CH7 A
HQ	L3	L3	CH6 A
HQ	SW1	SW2	CH7 A
HQ	SW2	SW2	CH7 A
HQ	SW3	SW2	CH7 A
L3	AB1	HQ	CH6 B
L3	AB2	HQ	CH6 B
L3	CHQ	HQ	CH6 B
L3	DK1	HQ	CH6 B
L3	HQ	HQ	CH6 B
L3	SW1	HQ	CH6 B


AD-A189 146 AUTOMATED INTERACTIVE SIMULATION MODEL (AISIM) VAX VERSION 50 ACCEPTANCE..(U) HUGHES AIRCRAFT CO FULLERTON CA GROUND SYSTEMS GROUP V ALLERTON ET AL. 29 APR 87
3/4
UNCLASSIFIED 1854474-2 ESD-TR-87-226 F19628-86-C-0070 F/G 12/5 NL



COPY RESOLUTION TEST CHART

PAGE 7

L3	SW2	HQ	CH8_B
L3	SW3	HQ	CH6_B
SW1	AB1	AB1	CH1_B
SW1	AB2	AB2	CH2_B
SW1	CHQ	SW3	CH4_A
SW1	DK1	SW3	CH4_A
SW1	HQ	SW2	CH3_A
SW1	L3	SW2	CH3_A
SW1	SW2	SW2	CH3_A
SW1	SW3	SW3	CH4_A
SW2	AB1	SW1	CH3_B
SW2	AB2	SW1	CH3_B
SW2	CHQ	SW3	CH5_A
SW2	DK1	SW3	CH5_A
SW2	HQ	HQ	CH7_B
SW2	L3	HQ	CH7_B
SW2	SW1	SW1	CH3_B
SW2	SW3	SW3	CH5_A
SW3	AB1	SW1	CH4_B
SW3	AB2	SW1	CH4_B
SW3	CHQ	CHQ	CH8_B
SW3	DK1	CHQ	CH8_B
SW3	HQ	SW2	CH5_B
SW3	L3	SW2	CH5_B
SW3	SW1	SW1	CH4_B
SW3	SW2	SW2	CH5_B

ACTION DEFINITION.....

ACTION MNEMONIC	COMMENT
FORMAT	TIME USED TO FORMAT PLANS FROM CHQ
LATENCY	LATENCY PAUSE SUBSEQUENT TO SEEK
ROUTE_OH	PROCESSING DELAY TO ROUTE A MESSAGE
SEEK	SEEKING INFORMATION ON DISK
UPDATE	UPDATING INFO SINCE PREVIOUS BROADCAST TO OTHER NODES
XFER	TRANSFER INFORMATION SOUGHT ON DISK
XFER_OH	PROCESSING DELAY TO ROUTE A MESSAGE OVER A CHANNEL

PROCESS DEFINITION.....

PROCESS MNEMONIC	DESCRIPTION
ABUPDATE	UPDATE DATA FROM AIRBASE

ENTRY	OPCODE	PARM	PARM	PARM	COMMENT

```
======== ======== ======== ======== ======== ========================
         START              NO
         GIVEN    MSG
         RETURN   MSG
         UPDATE   CONSTANT 0.1                TIME CONSUMED IN UPDATING
                  MSECONDS RESUME
         END
```

LOCAL VARIABLES OF PROCESS ABUPDATE

```
=============================================================================
    1 MSG       (I)    2 UPDATE    (A)
```

```
PROCESS
MNEMONIC          DESCRIPTION
======== ======== ============================================================
AB_DATA           AIR BASE STATUS BROADCAST TO ALL OTHER NODES
```

```
ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ========================
         START             NO
         GIVEN    MSG
         RETURN   MSG
         CALL     MRS      NOWAIT   10       PROCESS REQUEST TO CHQ
         GIVEN    CHQ_DATA 10       $REQNORE
                  750      CHQ      MSG
         CALL     MRS      NOWAIT   10       PROCESS REQUEST TO HQ
         GIVEN    HQ_DATA  10       $REQNORE
                  750      HQ       MSG
         ASSIGN   $CNODE                      CURRENT NODE
                  CNODE
         COMPARE  CNODE             EQ       TEST FOR CURRENT NODE
                  AB1               AB1
         CALL     MRS      NOWAIT   10       PROCESS REQUEST TO AB1
         GIVEN    ABUPDATE 10       $REQNORE
                  750      AB1      MSG
         BRANCH   END      100               BRANCH TO THE END
AB1      ENTRY                               ENTRY FROM COMPARE NODE
         CALL     MRS      NOWAIT   10       PROCESS REQUEST TO AB2
         GIVEN    ABUPDATE 10       $REQNORE
                  750      AB2      MSG
END      ENTRY                               ENTRY FROM REQUEST TO AB1
         END
```

LOCAL VARIABLES OF PROCESS AB_DATA

```
=============================================================================
    1 MSG       (I)    2 MRS       (P)    3 CHQ_DATA  (P)    4 CHQ       (R)
    5 HQ_DATA   (P)    6 HQ        (R)    7 CNODE            8 AB1       (R)
    9 ABUPDATE  (P)   10 AB2       (R)
```

PROCESS

PAGE 9

MNEMONIC	DESCRIPTION
AB_REQ	AISBASE REQUEST FOR PLANS REPORT FROM CHQ

ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
	START		NO		
	GIVEN	MSG			
	RETURN	MSG			
	CALL	MRS	WAIT	5	PROCESS REQUEST TO CHQ
	GIVEN	PLANS	5	$REQRESP	
		200	CHQ	MSG	
	END				

LOCAL VARIABLES OF PROCESS AB_REQ

1 MSG (I) 2 MRS (P) 3 PLANS (P) 4 CHQ (R)

PROCESS

MNEMONIC	DESCRIPTION
CHANPROC	FULL AND HALF DUPLEX CHANNEL LOGIC

ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
	START	ALL	NO		
	GIVEN	MSG			
	ASSIGN	MSG	CNODE		SET INTERNAL NODE CURRENT
		$CNODE			
	ASSIGN	MSG	TNODE		GET DESTINATION NODE
		TO_NODE			
	ASSIGN	$NXTNODE	TO_NODE		SET NEXT NODE TO DESTN
		NXT_NODE			
	ASSIGN	$CHANNEL	TO_NODE		GET CHANNEL TO NEXT NODE
		CHANNEL			
	ALLOC	CHANNEL	1	ALL	OBTAIN CHANNEL FOR XFER
		$PRIORTY			
	ASSIGN	CHANNEL	RATE		WHAT IS CHANNEL RATE?
		VSPEED			
	ASSIGN	MSG	LENGTH		MESSAGE LENGTH
		VLENGTH			
	EVAL	VM_OVHD			CALCULATE TRANSFER TIME
		VSPEED*VLENGTH			
	XFER_OH	CONSTANT	VM_OVHD		DELAY DUE TO TRANSFER TIME
		MSECONDS	RESUME		
	ASSIGN	NXT_NODE			MSG RESIDES IN NEXT NODE
		MSG	CNODE		

```
PAGE   10
          ASSIGN    NXT_NODE                    SET INTERNAL NODE REGISTER
                    $CNODE
          DEALLOC   CHANNEL  1                  FREE UP CHANNEL AFTER XFER
          CALL      NODEPROC WAIT      0        ROUTE MESSAGE TO NEXT NODE
          GIVEN     MSG
          END

LOCAL VARIABLES OF PROCESS CHANPROC
=============================================================================
    1 MSG         (I)     2 TO_NODE           3 NXT_NODE          4 CHANNEL
    5 VSPEED              6 VLENGTH           7 VM_OVHD           8 XFER_OH    (A)
    9 NODEPROC    (P)
PROCESS
MNEMONIC            DESCRIPTION
======== ======== ========================================================
CHQ_DATA            CHQ GETS MESSAGE, FORMULATES RESPONSE, AND REPLIES

ENTRY     OPCODE    PARM      PARM      PARM      COMMENT
========= ========= ========= ========= ========= ========================
          START               NO
          GIVEN     MSG
          RETURN    MSG
          ASSIGN    MSG       LENGTH              MAKE MSG-LENGTH = V_LENGTH
                    V_LENGTH
          EVAL      V_TIME                        EVALUATE MSG PROCESS TIME
                    .016*V_LENGTH
          UPDATE    CONSTANT V_TIME               PROCESSING TIME CONSUMED
                    MSECONDS RESUME
          END

LOCAL VARIABLES OF PROCESS CHQ_DATA
=============================================================================
    1 MSG         (I)     2 V_LENGTH          3 V_TIME            4 UPDATE     (A)

PROCESS
MNEMONIC            DESCRIPTION
======== ======== ========================================================
DESTPROC            PROCESSING AT DESTINATION OF MESSAGE

ENTRY     OPCODE    PARM      PARM      PARM      COMMENT
========= ========= ========= ========= ========= ========================
          START     ALL       NO
          GIVEN     MSG
          ASSIGN    MSG       CNODE               CURRENT NODE
                    C_NODE
          COMPARE   MSG       TYPE      EQ        IF RESPONSE, DESTROY
                    $RESP               DESTROY
```

```
PAGE   11
          ALLOC     C_NODE    1          ALL       ALLOCATE CURRENT NODE
                    $PRIORITY
          ASSIGN    MSG       RPROC                EXECUTE THE CALLED PROCESS
                    PROCESS
          ASSIGN    MSG       RPROCPRI             SET PRIORITY FOR REQ PROC
                    PRIORITY
          CALL      PROCESS   WAIT       PRIORITY WAIT UNTIL COMPLETE
          GIVEN     MSG
          RETURN    MSG
          DEALLOC   C_NODE    1                    DEALLOCATE CURRENT NODE
          COMPARE   MSG       TYPE       EQ        NO RESPONSE REQ -> DESTROY
                    $REQNORE              DESTROY
          ASSIGN    $RESP                          CHANGE MSG RESPONSE TYPE
                    MSG       TYPE
          ASSIGN    MSG       FNODE                SWITCH FROM AND TO NODES
                    MSG       TNODE
          ASSIGN    MSG       CNODE                CURRENT NODE IS FROM NODE
                    MSG       FNODE
          CALL      CHANPROC  WAIT       0         RETURN MESSAGE TO ORIGIN
          GIVEN     MSG
          BRANCH    END       100
DESTROY   ENTRY                                    TERMINATE MESSAGE AT DEST
          DESTROY   MSG                            TERMINATE MSG
END       ENTRY
          END

LOCAL VARIABLES OF PROCESS DESTPROC
-----------------------------------------------------------------------
    1 MSG        (I)     2 C_NODE            3 PROCESS    (X)     4 PRIORITY
    5 CHANPROC   (P)
PROCESS
MNEMONIC            DESCRIPTION
======== ======== ============================================--=======
DISK_OP             OPERATION OF DISK


ENTRY     OPCODE    PARM      PARM      PARM      COMMENT
========= ========= ========= ========= ========= ========================
          START               NO
          GIVEN     LENGTH    DISK
          ASSIGN    DISK      SPEED               MAKE DISK SPEED = V_SPEED
                    V_SPEED
          EVAL      xFERTIME                      TRANSFER TIME CALCULATED
                    LENGTH/V_SPEED
          ALLOC     DISK      1         ALL       DISK ALLOCATED
                    $PRIORTY
          ASSIGN    DISK      SEEK                MAKE SEEKTIME = SEEK
                    SEEKTIME
          SEEK      UNIFORM   SEEKTIME  SEEKTIME  TIME FOR SEEK IS CONSUMED
```

```
                MSECONDS RESUME
          ASSIGN  DISK     LATENCY            MAKE DISK LATENCY=LATETIME
                  LATETIME
          LATENCY UNIFORM  LATETIME LATETIME TIME CONSUMED FOR LATENCY
                  MSECONDS RESUME
          XFER    CONSTANT XFERTIME           TRANSFER TIME CONSUMED
                  MSECONDS RESUME
          DEALLOC DISK     1                  DISK RESOURCE DEALLOCATED
          END

LOCAL VARIABLES OF PROCESS DISK_OP
=================================================================
    1 LENGTH          2 DISK            3 V_SPEED          4 XFERTIME
    5 SEEKTIME        6 SEEK      (A)   7 LATETIME         8 LATENCY   (A)
    9 XFER      (A)
PROCESS
MNEMONIC          DESCRIPTION
======== ======== ================================================
HQ_DATA           HQ GETS MESSAGE, FORMULATES RESPONSE, AND REPLIES

ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ========================
          START             NO
          GIVEN    MSG
          RETURN   MSG
          ASSIGN   MSG      LENGTH           MAKE MSG-LENGTH = V_LENGTH
                   V_LENGTH
          EVAL     V_TIME                     EVALUATE MSG PROCESS TIME
                   .015*V_LENGTH
          UPDATE   CONSTANT V_TIME            PROCESSING TIME CONSUMED
                   MSECONDS RESUME
          END

LOCAL VARIABLES OF PROCESS HQ_DATA
=================================================================
    1 MSG         (I)   2 V_LENGTH        3 V_TIME           4 UPDATE    (A)

PROCESS
MNEMONIC          DESCRIPTION
======== ======== ================================================
HQ_REQ            HQ REQUEST FOR STATUS DISPLAY FROM CHQ

ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ========================
          START    L3       NO
          GIVEN    MSG
          RETURN   MSG
```

```
PAGE   13
          CALL      MRS       WAIT      4         MAKES I/O REQUEST TO CHQ
          GIVEN     PLANS     4         $REQRESP
                    200       CHQ       MSG
          END

LOCAL VARIABLES OF PROCESS HQ_REQ
================================================================
    1 MSG        (I)     2 MRS        (P)     3 PLANS      (P)     4 CHQ        (R)

PROCESS
MNEMONIC            DESCRIPTION
======== ========= ================================================
MRS                 GENERATE A PROCESS REQUEST MESSAGE AND INITIATE I/O


ENTRY     OPCODE    PARM      PARM      PARM      COMMENT
========= ========= ========= ========= ========= ========================
          START     ALL       NO
          GIVEN     PROCESS   PRIORITY MSG_TYPE
                    MSG_LNTH  TO_NODE   MSG
          CREATE    MSG                         CREATE MESSAGE
          ASSIGN    MSG_LNTH                    SET MESSAGE LENGTH
                    MSG       LENGTH
          ASSIGN    PROCESS                     SET PROCESS
                    MSG       RPROC
          ASSIGN    PRIORITY                    SET PRIORITY
                    MSG       RPROCPRI
          ASSIGN    TO_NODE                     SET DESTINATION
                    MSG       TNODE
          ASSIGN    MSG_TYPE                    SET MESSAGE TYPE
                    MSG       TYPE
          CALL      NODEPROC  WAIT      0         EXECUTIVE SERVICING OF MSG
          GIVEN     MSG
          END

LOCAL VARIABLES OF PROCESS MRS
================================================================
    1 PROCESS    (X)     2 PRIORITY          3 MSG_TYPE          4 MSG_LNTH
    5 TO_NODE            6 MSG        (I)     7 NODEPROC   (P)
PROCESS
MNEMONIC            DESCRIPTION
======== ========= ================================================
NODEPROC            NODAL PROCESSING AND ROUTING


ENTRY     OPCODE    PARM      PARM      PARM      COMMENT
========= ========= ========= ========= ========= ========================
          START     ALL       NO
          GIVEN     MSG
```

```
PAGE    14
         ASSIGN   MSG       CNODE                 INDICATE CURRENT NODE
                  C_NODE
         ASSIGN   C_NODE    M_ROUTE               PROCESSING RATE OF NODE
                  RT_OVHD
         ASSIGN   MSG       LENGTH                GET MESSAGE LENGTH
                  MSG_LNTH
         EVAL     OVERHEAD                        COMPUTE PROCESSING DELAY
                  MSG_LNTH*RT_OVHD
         ALLOC    C_NODE    1         ALL         ALLOCATE CURRENT NODE
                  $PRIORTY
         ROUTE_OH CONSTANT  OVERHEAD              DELAY FOR ROUTING
                  MSECONDS  RESUME
         DEALLOC  C_NODE    1                     RELEASE C_NODE TO OTHERS
         COMPARE  MSG       CNODE     EQ          IS MSG AT DESTINATION?
                  MSG       TNODE     CONTROL
         CALL     CHANPROC  WAIT      0           FORWARD MSG TO CHANNEL
         GIVEN    MSG
         BRANCH   END       100
CONTROL  ENTRY                                    MESSAGE AT DESTINATION
         CALL     DESTPROC  WAIT      0           CONTEXT SWITCH MESSAGE
         GIVEN    MSG
END      ENTRY
         END

LOCAL VARIABLES OF PROCESS NODEPROC
=====================================================================
    1 MSG        (I)     2 C_NODE            3 RT_OVHD           4 MSG_LNTH
    5 OVERHEAD           6 ROUTE_OH   (A)    7 CHANPROC   (P)    8 DESTPROC   (P)

PROCESS
MNEMONIC          DESCRIPTION
======== ======== ===================================================
PLANS             REQUEST FOR PLANS FROM CHQ


ENTRY    OPCODE   PARM      PARM      PARM      COMMENT
======== ======== ======== ======== ======== ========================
         START    CHQ       NO
         GIVEN    MSG
         RETURN   MSG
         ASSIGN   MSG       LENGTH                MAKE MSG LENGTH = V_LENGTH
                  V_LENGTH
         EVAL     V_TIME                          EVALUATE MSG PROCESS TIME
                  .01*V_LENGTH
         FORMAT   CONSTANT  V_TIME                TIME USED TO FORMAT PLANS
                  MSECONDS  RESUME
         CALL     DISK_OP   WAIT      10          CALLING PROCESS DISK_OP
         GIVEN    500       DK1
         ASSIGN   500                             INCREASE MSG LENGTH
```

```
PAGE   15
                    MSG       LENGTH
          END

LOCAL VARIABLES OF PROCESS PLANS
================================================================================
    1 MSG        (I)     2 V_LENGTH          3 V_TIME            4 FORMAT     (A)
    5 DISK_OP    (P)     6 DR1         (R)
PROCESS
MNEMONIC            DESCRIPTION
======== ======== ========================================================
TRACE               TURN ON TRACE OUTPUT


ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ==========================
         START    ALL      NO
         COMPARE  V_TRACE             EQ       TEST IF FLAG SET FOR TRACE
                  0                   NOTRACE
         TRACE    ON
         TRACE    ON
NOTRACE  ENTRY
         END

GLOBAL VARIABLES OF PROCESS TRACE
================================================================================
    1 V_TRACE    (C)

LOAD DEFINITION.....

LOAD
MNEMONIC            DESCRIPTION
======== ======== ========================================================
ABLOAD              COMMUNICATIONS FROM AIRBASES
         LOAD     NODES
         ======== ======== ======== ========
         AB1      AB2


         PROCESS             SCHEDULE
         MNEMONIC MAX #      METHOD   MEAN     DELTA    UNITS    PRIORITY
         ======== ======== ======== ======== ======== ======== ========
         AB_DATA  60         INTERVAL ABDRATE           MINUTES  10
         AB_REQ   60         EXPONENT ABRRATE           MSECONDS 5
LOAD
MNEMONIC            DESCRIPTION
======== ======== ========================================================
HQLOAD              REQUEST DATA FROM CHQ
         LOAD     NODES
         ======== ======== ======== ========
```

L3

PROCESS MNEMONIC	MAX #	SCHEDULE METHOD	MEAN	DELTA	UNITS	PRIORITY
HQ_REQ	60	EXPONENT	HQRRATE		MSECONDS	4

SCENARIO DEFINITION....

SCENARIO MNEMONIC	DESCRIPTION
TEST01	SCENARIO FOR MINI MITRE 1

PERIOD LENGTH	PERIOD UNITS	OUTPUT UNITS
360	SECONDS	SECONDS

	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC
	1	2	3	4	5	6	7
	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC
	8	9	10				

TRIGGER MNEMONIC	TIME TO SCHEDULE	SCHEDULE UNITS	SCHEDULE PRIORITY	TRIGGER MNEMONIC	TIME TO SCHEDULE	SCHEDULE UNITS	SCHEDULE PRIORITY
ABLOAD	0	MSECONDS	0	HQLOAD	0	MSECONDS	0
TRACE	0	MSECONDS	0				

0 ERRORS WERE DETECTED DURING MODEL INITIALIZATION

APPENDIX B

Test 1 Model - File Verification

TESTDBE.DBF Listing

```
$$$
```

MNEMONIC	TYPE	DESCRIPTION
TCON	C	TEST CONTINUOUS TABLE

X-VALUE	Y-VALUE
0.0	0.0
100.0	10.0
1000.0	100.0
200.0	20.0
300.0	30.0
400.0	40.0
500.0	50.0
600.0	60.0
700.0	70.0
800.0	80.0
900.0	90.0

TABLE

MNEMONIC	TYPE	DESCRIPTION
TDIS	D	TEST DISCRETE TABLE

X-VALUE	Y-VALUE
0.0	0.0
100.0	10.0
1000.0	100.0
200.0	20.0
300.0	30.0
400.0	40.0
500.0	50.0
600.0	60.0
700.0	70.0
800.0	80.0
900.0	90.0

GLOBAL VARIABLE DEFINITION.....

VARIABLE MNEMONIC	INITIAL VALUE	COMMENT
VABS	10.0	TEST EVAL ABSOLUTE RESULT
VADD	10.0	TEST EVAL ADD RESULT
VARCOS	2.0	TEST EVAL ARCOSINE RESULT
VARCSIN	1.141693	TEST EVAL ARCSINE RESULT
VARCTAN	-1.14169	TEST EVAL ARCTAN RESULT
VBETA	10.0	TEST EVAL BETA RESULT
VBIN	0.5	TEST EVAL BINOMIAL RESULT
VCOMP1	0.0	TEST COMPLEX EVALUATION
VCOMP2	0.0	TEST COMPLEX EVALUATION

VCOMP3	0.0	TEST COMPLEX EVALUATION
VCOMP4	0.0	TEST COMPLEX EVALUATION
VCOS	-.416147	TEST EVAL COSINE RESULT
VCTABLE	50.0	TEST EVAL CONTINUOUS TABLE RESULT
VDIV	10.0	TEST EVAL DIVIDE RESULT
VDTABLE	50.0	TEST EVAL DISCRETE TABLE RESULT
VERLANG	100.0	TEST EVAL ERLANG DISTRIBUTION
VEXP	10.0	TEST EVAL EXPONENTIAL RESULT
VEXP10	100.0	TEST EVAL EXPONENT 10 RESULT
VEXPE	100.0	TEST EVAL EXPONENT E RESULT
VGAMMA	10.0	TEST EVAL GAMMA RESULT
VLOG10	2.0	TEST EVAL LOG 10 RESULT
VLOGE	4.605170	TEST EVAL LOG E RESULT
VLOGN	10.0	TEST EVAL LOGNORMAL RESULT
VMULT	10.0	TEST EVAL MULTIPLY RESULT
VNBUSYQ	0	TEST ASSIGN NBUSYQ
VNIDLEQ	0	TEST ASSIGN NIDLEQ
VNORMAL	10.0	TEST EVAL NORMAL RESULT
VNWAITQ	0	TEST ASSIGN NWAITQ
VPOISSON	110.0	TEST EVAL POISSON RESULT
VPOWER	10.0	TEST EVAL POWER RESULT
VRAN	0.5	TEST EVAL RANDOM RESULT
VSIN	0.909297	TEST EVAL SINE RESULT
VSQRT	10.0	TEST EVAL SQRT RESULT
VSUB	10.0	TEST EVAL SUBTRACT RESULT
VTAN	-2.18504	TEST EVAL TANGENT RESULT
VUNIFORM	10.0	TEST EVAL UNIFORM RESULT
VWEIBULL	10.0	TEST EVAL WEIBULL RESULT

ITEM DEFINITION.....

QUEUE DEFINITION.....

QUEUE MNEMONIC	MAXIMUM SIZE	COMMENT

RESOURCE DEFINITION.....

RESOURCE MNEMONIC	TOTAL # UNITS	INITIAL # UNITS	DESCRIPTION
RES1	2	2	TEST RESOURCE 1

ATTR. NAME	INITIAL VALUE
ATTR1	10
ATTR2	15

ARCHITECTURE LEGAL PATH DEFINITION

FROM DEVICE	TO DEVICE	NEXT DEVICE	VIA LINK

ACTION DEFINITION.....

ACTION MNEMONIC	COMMENT
EVALUATE	TEST EVAL FUNCTIONS
PROCESS	TEST DISTRIBUTION FUNCTIONS

PROCESS DEFINITION.....

PROCESS MNEMONIC	DESCRIPTION
OFD1	TEST EXPONENTIAL DISTRIBUTION AND COMPARE

ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
	START	ALL	NO		
	CALL	OFDINIT	NOWAIT	0	INITIATE ODS 0-10
	PROCESS	EXPONENT	100.0		TEST EXPONENTIAL ACTION
		SECONDS	RESUME		
	ASSIGN	1.0			
		LOCAL1			
	ASSIGN	2.0			
		LOCAL2			
	ASSIGN	3.0			
		LOCAL3			
TESTEQ	ENTRY				TEST COMPARE EQ
	COMPARE	LOCAL1		EQ	
		LOCAL2		EQTEST	
	BRANCH	EQTEST	100		TEST FALL THRU
EQTEST	ENTRY				
	COMPARE	LOCAL3		EQ	
		LOCAL3		TESTNE	
	BRANCH	TESTNE	100		TEST FALL THRU
TESTNE	ENTRY				TEST COMPARE NE
	COMPARE	LOCAL3		NE	
		LOCAL3		NETEST	
	BRANCH	NETEST	100		
NETEST	ENTRY				

```
          COMPARE  LOCAL1            NE
                   LOCAL2            TESTLT
          BRANCH   TESTLT   100                TEST FALL THRU
TESTLT    ENTRY                               TEST COMPARE LT
          COMPARE  LOCAL3            LT
                   LOCAL1            LTTEST
          BRANCH   LTTEST   100                TEST FALL THRU
LTTEST    ENTRY
          COMPARE  LOCAL1            LT
                   LOCAL3            TESTGT
          BRANCH   TESTGT   100                TEST FALL THRU
TESTGT    ENTRY                               TEST COMPARE GT
          COMPARE  LOCAL1            GT
                   LOCAL2            GTTEST
          BRANCH   GTTEST   100                TEST FALL THRU
GTTEST    ENTRY
          COMPARE  LOCAL2            GT
                   LOCAL1            TESTLE
          BRANCH   TESTLE   100                TEST FALL THRU
TESTLE    ENTRY                               TEST COMPARE LE
          COMPARE  LOCAL3            LE
                   LOCAL1            LETEST1
          BRANCH   LETEST1  100                TEST FALL THRU
LETEST1   ENTRY
          COMPARE  LOCAL2            LE
                   LOCAL2            LETEST2
          BRANCH   LETEST2  100                TEST FALL THRU
LETEST2   ENTRY
          COMPARE  LOCAL1            LE
                   LOCAL3            TESTGE
          BRANCH   TESTGE   100                TEST FALL THRU
TESTGE    ENTRY                               TEST COMPARE GE
          COMPARE  LOCAL1            GE
                   LOCAL3            GETEST1
          BRANCH   GETEST1  100                TEST FALL THRU
GETEST1   ENTRY
          COMPARE  LOCAL2            GE
                   LOCAL2            GETEST2
          BRANCH   GETEST2  100                TEST FALL THRU
GETEST2   ENTRY
          COMPARE  LOCAL3            GE
                   LOCAL1            TESTEND
          BRANCH   TESTEND  100                TEST FALL THRU
TESTEND   ENTRY                               END OFD COMPARE TESTING
          END
```

LOCAL VARIABLES OF PROCESS OFD1

1	OFDINIT	(P)	2 PROCESS	(A)	3 LOCAL1		4 LOCAL2

5 LOCAL3

```
PROCESS
MNEMONIC          DESCRIPTION
======== ======== ==================================================
OFD10             TEST INTERVAL SCHEDULE AND EVAL TRIG FUNCTIONS

ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ========================
         START    ALL      NO
         EVAL     VLOG10
                  LOG10(100.0)
         EVAL     VEXP10
                  10.0**VLOG10
         EVAL     VLOGE
                  LOGE(100.0)
         EVAL     VEXPE
                  2.718281**VLOGE
         EVAL     VSIN
                  SINE(2)
         EVAL     VARCSIN
                  ARCSINE(VSIN)
         EVAL     VCOS
                  COSINE(2)
         EVAL     VARCOS
                  ARCOSINE(VCOS)
         EVAL     VTAN
                  TANGENT(2)
         EVAL     VARCTAN
                  ARCTAN(VTAN)
         END
```

GLOBAL VARIABLES OF PROCESS OFD10

```
================================================================================
    1 VLOG10          2 VEXP10          3 VLOGE           4 VEXPE
    5 VSIN            6 VARCSIN         7 VCOS            8 VARCOS
    9 VTAN           10 VARCTAN
```

```
PROCESS
MNEMONIC          DESCRIPTION
======== ======== ==================================================
OFD11             TEST ALLOCATE & DEALLOCATE RESOURCE

ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ========================
         START    ALL      NO
         ALLOC    RES1     1        ALL      TEST ALLOCATE
                  $PRIORTY
         PROCESS  CONSTANT 100.0
```

```
                SECONDS  RESUME
        DEALLOC RES1     1                    TEST DEALLOCATE
        END
```

LOCAL VARIABLES OF PROCESS OFD11

```
    1 RES1      (R)     2 PROCESS   (A)
```

```
PROCESS
MNEMONIC            DESCRIPTION
======== ======== ==================================================
OFD12               TEST COMPLEX ARITHMETIC EVALUATIONS
```

```
ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ========================
         START    ALL      NO
         EVAL     VCOMP1
                  RES1[ATTR1]+(RES1[NIDLEQ]
                  + TDIS(1))
         EVAL     VCOMP2
                  20.5 * 2.3 - RES1[ATTR3]
         EVAL     VCOMP3
                  INTEGER(RANDOM*10) + 5
         EVAL     VCOMP4
                  EXPONENT(10.0)+(RES1[ATTR2
                  ]*TCON(2))
         END
```

LOCAL VARIABLES OF PROCESS OFD12

```
    1 RES1      (R)     2 TDIS      (T)     3 TCON      (T)
```

GLOBAL VARIABLES OF PROCESS OFD12

```
    1 VCOMP1            2 VCOMP2            3 VCOMP3            4 VCOMP4
```

```
PROCESS
MNEMONIC            DESCRIPTION
======== ======== ==================================================
OFD2                TEST LOGNORML DISTRIBUTION AND ASSIGN
```

```
ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ========================
         START    ALL      NO
         ASSIGN   RES1     NIDLEQ
                  VNIDLEQ
         ASSIGN   RES1     NBUSYQ
                  VNBUSYQ
```

```
PAGE    8
          ASSIGN    RES1      NWAITQ
                    VNWAITQ
CALL      ENTRY                                    SET UP RESOURCE UTIL
          CALL      OFD11     NOWAIT    2.0        SCHEDULE A NOWAIT PROCESS
          LOOP      CALL      4                    LOOP 4 TIMES
          PROCESS   LOGNORML  10.0      2.0
                    SECONDS   RESUME
          ASSIGN    RES1      NIDLEQ
                    VNIDLEQ
          ASSIGN    RES1      NBUSYQ
                    VNBUSYQ
          ASSIGN    RES1      NWAITQ
                    VNWAITQ
          END

LOCAL VARIABLES OF PROCESS OFD2
================================================================================
    1 RES1       (R)     2 OFD11      (P)     3 PROCESS    (A)

GLOBAL VARIABLES OF PROCESS OFD2
================================================================================
    1 VNIDLEQ            2 VNBUSYQ            3 VNWAITQ
PROCESS
MNEMONIC            DESCRIPTION
======== ======== ============================================================
OFD3                TEST NORMAL DISTRIBUTION


ENTRY     OPCODE    PARM      PARM      PARM      COMMENT
========  ========  ========  ========  ========  ========================
          START     ALL       NO
          PROCESS   NORMAL    100.0     100.0
                    SECONDS   RESUME
          END

LOCAL VARIABLES OF PROCESS OFD3
================================================================================
    1 PROCESS    (A)
PROCESS
MNEMONIC            DESCRIPTION
======== ======== ============================================================
OFD4                TEST UNIFORM DISTRIBUTION


ENTRY     OPCODE    PARM      PARM      PARM      COMMENT
========  ========  ========  ========  ========  ========================
          START     ALL       NO
          PROCESS   UNIFORM   100.00    100.00
                    SECONDS   RESUME
```

```
PAGE     9
          END

LOCAL VARIABLES OF PROCESS OFD4
================================================================
    1 PROCESS    (A)
PROCESS
MNEMONIC            DESCRIPTION
======== ======== ============================================
OFD5                TEST ERLANG DISTRIBUTION

ENTRY    OPCODE    PARM      PARM      PARM      COMMENT
======== ======== ======== ======== ======== ========================
         START     ALL       NO
         EVALUATE  ERLANG    10.0      2.0       TEST
                   SECONDS   RESUME
         END

LOCAL VARIABLES OF PROCESS OFD6
================================================================
    1 EVALUATE   (A)
PROCESS
MNEMONIC            DESCRIPTION
======== ======== ============================================
OFD6                TEST WEIBULL DISTRIBUTION

ENTRY    OPCODE    PARM      PARM      PARM      COMMENT
======== ======== ======== ======== ======== ========================
         START     ALL       NO
         EVALUATE  WEIBULL   100.0     100.0     TEST
                   SECONDS   RESUME
         END

LOCAL VARIABLES OF PROCESS OFD8
================================================================
    1 EVALUATE   (A)
PROCESS
MNEMONIC            DESCRIPTION
======== ======== ============================================
OFD7                TEST GAMMA DISTRIBUTION

ENTRY    OPCODE    PARM      PARM      PARM      COMMENT
======== ======== ======== ======== ======== ========================
         START     ALL       NO
         EVALUATE  GAMMA     50.0      10.0      TEST
                   SECONDS   RESUME
         END
```

LOCAL VARIABLES OF PROCESS OFD7

1 EVALUATE (A)

PROCESS MNEMONIC	DESCRIPTION
OFD8	TEST POISSON SCHEDULE AND EVAL DISTRIBUTIONS

ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
	START	ALL	NO		
	EVAL	VRAN			
		RANDOM			
	EVAL	VBIN			
		BINOMIAL	(100.0,10.0)		
	EVAL	VBETA			
		BETA	(10.0,5.0)		
	EVAL	VERLANG			
		ERLANG	(10.0,5.0)		
	EVAL	VEXP			
		EXPONENT	(10.0)		
	EVAL	VGAMMA			
		GAMMA	(10.0,5.0)		
	EVAL	VLOGN			
		LOGNORML	(10.0,5.0)		
	EVAL	VNORMAL			
		NORMAL	(10.0,5.0)		
	EVAL	VPOISSON			
		POISSON	(10.0)		
	EVAL	VUNIFORM			
		UNIFORM	(10.0,5.0)		
	EVAL	VWEIBULL			
		WEIBULL	(10.0,5.0)		
	END				

GLOBAL VARIABLES OF PROCESS OFD8

1 VRAN	2 VBIN	3 VBETA	4 VERLANG
5 VEXP	6 VGAMMA	7 VLOGN	8 VNORMAL
9 VPOISSON	10 VUNIFORM	11 VWEIBULL	

PROCESS MNEMONIC	DESCRIPTION
OFD9	TEST START SCHEDULE AND CONSTANT ACTION

ENTRY	OPCODE	PARM	PARM	PARM	COMMENT

```
PAGE   11
======== ======== ======== ======== ======== ==========================
         START    ALL      NO
         EVALUATE CONSTANT 100.00             TEST
                  SECONDS  RESUME
         END

LOCAL VARIABLES OF PROCESS OFD9
================================================================================
    1 EVALUATE  (A)
PROCESS
MNEMONIC          DESCRIPTION
======== ======== ================================================
OFDINIT           OFD INITIATOR FOR 6 THROUGH 10


ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ==========================
         START    ALL      NO
         ASSIGN   6                          LOOP COUNTER AND TBL INDEX
                  COUNTER
NEXT     ENTRY                               CYCLE FOR ALL OFDS
         COMPARE  COUNTER           GT
                  10                END
         EVAL     OFD                        INDEX INTO ALPHA TABLE
                  ALPHATBL(COUNTER)
         CALL     OFD      NOWAIT   0        INITIATE OFD INDEX COUNTER
         EVAL     COUNTER                     INCREMENT LOOP COUNTER
                  COUNTER+1
         BRANCH   NEXT     100
END      ENTRY
         END

LOCAL VARIABLES OF PROCESS OFDINIT
================================================================================
    1 COUNTER          2 OFD              3 ALPHATBL  (T)
PROCESS
MNEMONIC          DESCRIPTION
======== ======== ================================================
TIMECALL          TEST TIME CALL SCHEDULE AND EVAL ARITHMETIC/TABLE


ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ==========================
         START    ALL      NO
         EVAL     VADD
                  20.5+(-10.5)
         EVALUATE CONSTANT 100.0
                  SECONDS  RESUME
         EVAL     VSUB
```

```
                6.5-(-3.5)
      EVALUATE CONSTANT VSUB
                SECONDS  RESUME
      EVAL      VMULT
                -2.5*(-4.0)
      EVALUATE CONSTANT VMULT
                SECONDS  RESUME
      EVAL      VDIV
                -4.0/(-0.40)
      EVALUATE CONSTANT VDIV
                SECONDS  RESUME
      EVAL      VPOWER
                3.162277**2.0
      EVALUATE CONSTANT VPOWER
                SECONDS  RESUME
      EVAL      VSQRT
                SQRT(100.0)
      EVALUATE CONSTANT VSQRT
                SECONDS  RESUME
      EVAL      VABS
                ABSOLUTE(-10.0)
      EVALUATE CONSTANT VABS
                SECONDS  RESUME
      EVAL      VCTABLE
                TCON(-50)
      EVAL      VDTABLE
                TDIS(-50.0)
      EVAL      VCTABLE
                TCON(1050.0)
      EVAL      VDTABLE
                TDIS(1050.0)
      EVAL      VCTABLE
                TCON(150.0)
      EVAL      VDTABLE
                TDIS(150.0)
      EVAL      VCTABLE
                TCON(250.0)
      EVAL      VDTABLE
                TDIS(250.0)
      EVAL      VCTABLE
                TCON(500.0)
      EVAL      VDTABLE
                TDIS(500.0)
      EVAL      VCTABLE
                TCON(750.0)
      EVAL      VDTABLE
                TDIS(750.0)
      EVAL      VCTABLE
                TCON(850.0)
```

```
PAGE   13
         EVAL      VDTABLE
                   TDIS(850.0)

         END

LOCAL VARIABLES OF PROCESS TIMECALL
==========================================================================
    1 EVALUATE  (A)     2 TCON      (T)     3 TDIS      (T)

GLOBAL VARIABLES OF PROCESS TIMECALL
==========================================================================
    1 VADD              2 VSUB              3 VMULT             4 VDIV
    5 VPOWER            6 VSQRT             7 VABS              8 VCTABLE
    9 VDTABLE

LOAD DEFINITION.....

LOAD
MNEMONIC            DESCRIPTION
======== ========  ============================================================
LOAD1               TEST SCHEDULE METHODS
          LOAD      NODES
          ========  ========  ========  ========
          RES1

          PROCESS                 SCHEDULE
          MNEMONIC  MAX #         METHOD    MEAN      DELTA     UNITS     PRIORITY
          ========  ========      ========  ========  ========  ========  ========
          OFD1      100           EXPONENT  100                 SECONDS   2.0
          OFD2      100           LOGNORML  100       20.0      SECONDS   2.0
          OFD3      100           NORMAL    100       20.0      SECONDS   2.0
          OFD4      100           UNIFORM   100       20.0      SECONDS   2.0
          OFD5      100           ERLANG    100       2         SECONDS   2.0

LOAD
MNEMONIC            DESCRIPTION
======== ========  ============================================================
LOAD2               TEST COMPLEX ARITHMETIC
          LOAD      NODES
          ========  ========  ========  ========
          RES1

          PROCESS                 SCHEDULE
          MNEMONIC  MAX #         METHOD    MEAN      DELTA     UNITS     PRIORITY
          ========  ========      ========  ========  ========  ========  ========
          OFD12     1             START                         SECONDS   2.0

SCENARIO DEFINITION....
```

PAGE 14
SCENARIO
MNEMONIC DESCRIPTION
TEST1 TEST SCHEDULING METHODS

PERIOD LENGTH	PERIOD UNITS	OUTPUT UNITS
10000	SECONDS	SECONDS

	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC
	1						

TRIGGER MNEMONIC	TIME TO SCHEDULE	SCHEDULE UNITS	SCHEDULE PRIORITY	TRIGGER MNEMONIC	TIME TO SCHEDULE	SCHEDULE UNITS	SCHEDULE PRIORITY
LOAD1	0	SECONDS	0	LOAD2	0	SECONDS	0
TIMECALL	5000	SECONDS	0				

0 ERRORS WERE DETECTED DURING MODEL INITIALIZATION

APPENDIX B

Test 1 Model - File Verification

TESTDBF.DBF Listing

```
$$$
```

```
          600.0     60.0
          700.0     70.0
          800.0     80.0
          900.0     90.0

GLOBAL VARIABLE DEFINITION.....

VARIABLE  INITIAL
MNEMONIC  VALUE     COMMENT
========  ========  ================================================
VCOMP1    0.0       TEST COMPLEX EVALUATION
VCOMP2    0.0       TEST COMPLEX EVALUATION
VCOMP3    0.0       TEST COMPLEX EVALUATION
VCOMP4    0.0       TEST COMPLEX EVALUATION
VCOMP5    0.0       TEST COMPLEX EVALUATION
VDTABLE   50.0      TEST EVAL DISCRETE TABLE RESULT

ITEM DEFINITION.....


QUEUE DEFINITION.....

QUEUE     MAXIMUM
MNEMONIC    SIZE    COMMENT
========  ========  ================================================

RESOURCE DEFINITION.....

RESOURCE  TOTAL     INITIAL
MNEMONIC  # UNITS   # UNITS   DESCRIPTION
========  ========  ========  ========================================
RES1      2         2         TEST RESOURCE 1
          ATTR.     INITIAL
          NAME      VALUE
          ========  ========
          ATTR1     10
          ATTR2     15
          ATTR3     -6

ARCHITECTURE LEGAL PATH DEFINITION

FROM      TO        NEXT      VIA
DEVICE    DEVICE    DEVICE    LINK
========  ========  ========  ========

ACTION DEFINITION.....

ACTION
MNEMONIC            COMMENT
```

```
PAGE    3
======== ======== ==========================================================

PROCESS DEFINITION.....

PROCESS
MNEMONIC            DESCRIPTION
======== ======== ==========================================================
OFD1                TEST COMPLEX ARITHMETIC EVALUATIONS


ENTRY    OPCODE    PARM      PARM      PARM      COMMENT
======== ======== ======== ======== ======== ========================
         START     ALL       NO
         EVAL      VCOMP1
                   RES1[ATTR1]+(RES1[NIDLEQ]
                   + TDIS(1) * 12
#### ERROR - EXPRESSION DOES NOT TERMINATE CORRECTLY
####         - UNMATCHED LEFT PARENTHESIS
         EVAL      VCOMP2
                   20.5 * 2.3 - RES1[ATTR3]
         EVAL      VCOMP3
                   INTEGER[RANDOM*10] + 5
#### ERROR - FUNCTION NAME FOLLOWED BY INVALID CHARACTER "["
           - USE PARENTHESES TO ENCLOSE OPERANDS
           - ERROR DETECTED NEAR "INTEGER[R      "
         EVAL      VCOMP4
                   EXPONENT(10.0)+(RES1[ATTR2
                   ]TDIS(2))
#### ERROR - A VALID EXPRESSION IS PRECEDED OR FOLLOWED BY AN
             INVALID STRUCTURE
           - ERROR DETECTED NEAR "S1[ATTR2]TDIS(2"
         EVAL      VDTABLE
                   TDIS[860.0]
         EVAL      VCOMP5
                   RES1(ATTR1)+16
         END

LOCAL VARIABLES OF PROCESS OFD1
================================================================================
    1 RES1      (R)     2 TDIS      (T)     3 ATTR1

GLOBAL VARIABLES OF PROCESS OFD1
================================================================================
    1 VCOMP1            2 VCOMP2            3 VCOMP3            4 VCOMP4
    5 VDTABLE           6 VCOMP5

LOAD DEFINITION.....

LOAD
```

```
PAGE    4
MNEMONIC          DESCRIPTION
======== ======== ==================================================
LOAD1             TEST SCHEDULE METHODS
          LOAD     NODES
          ======== ======== ======== ========
          RES1


          PROCESS             SCHEDULE
          MNEMONIC MAX #      METHOD   MEAN     DELTA    UNITS    PRIORITY
          ======== ========   ======== ======== ======== ======== ========
          OFD1     1          START    100                SECONDS  2.0

SCENARIO DEFINITION....

SCENARIO
MNEMONIC          DESCRIPTION
======== ======== ==================================================
TEST1             TEST SCHEDULING METHODS

PERIOD    PERIOD   OUTPUT
LENGTH    UNITS    UNITS
========  ======== ========
100       SECONDS  SECONDS

          PERIOD   PERIOD   PERIOD   PERIOD   PERIOD   PERIOD   PERIOD
          MNEMONIC MNEMONIC MNEMONIC MNEMONIC MNEMONIC MNEMONIC MNEMONIC
======== ======== ======== ======== ======== ======== ======== ========
          1

TRIGGER  TIME  TO SCHEDULE SCHEDULE TRIGGER  TIME  TO SCHEDULE SCHEDULE
MNEMONIC SCHEDULE UNITS    PRIORITY MNEMONIC SCHEDULE UNITS    PRIORITY
======== ======== ======== ======== ======== ======== ======== ========
LOAD1    0        SECONDS  0


####    3 ERRORS WERE DETECTED DURING MODEL INITIALIZATION
```

APPENDIX C

Results Verification for

TESTDBA.DBF through TESTDBF.DBF

APPENDIX C

Results Verification for

TESTDBA.DBF

04/22/1987 17:19:07

TESTDBA

TEST ITEMS, RESOURCE PREEMPTION, CALL PROCESS, AND ACTION RESTART LOGIC

SIMULATION TIME = 100.00000 SECONDS

VARIABLE REPORT

NUMERIC VARIABLES...

VARIABLE	TOTAL SAMPLES.	VALUE CURRENT...	VALUE MEAN.....	VALUE STD DEV...	VALUE MINIMUM...	VALUE MAXIMUM...
C_TRACE	1	1.000	1.000	0.	1.000	1.000
V_COUNT1	1	10.000	10.000	0.	10.000	10.000

NON-NUMERIC VARIABLES...

VARIABLE	CURRENT TYPE	CURRENT VALUE

SIMULATION TIME = 100.00000 SECONDS

ITEM REPORT

ITEM NAME	NUMBER CREATED	NUMBER DESTR'D	TIME IN SYSTEM MINIMUM...	MAXIMUM...	AVERAGE...	STD DEV...
AITEM1	10	9	10.00	90.00	50.00	25.82
AITEM2	10	9	10.00	90.00	50.00	25.82
AITEM3	10	9	10.00	90.00	50.00	25.82
AITEM4	9	9	0.	0.	0.	0.
ITEM1	10	10	5.00	5.00	5.00	0.
ITEM2	10	10	4.00	4.00	4.00	0.
ITEM3	10	10	3.00	3.00	3.00	0.
ITEM4	10	10	2.00	2.00	2.00	0.
ITEM5	10	10	1.00	1.00	1.00	0.
ITEM6	10	10	0.	0.	0.	0.

PAGE 20

SIMULATION TIME = 100.00000 SECONDS

RESOURCE REPORT

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
CPU1						
# IDLE		0.	2.700	2.759	0.	8.000
REQUEST TIME			0.545	1.291	0.	5.000
HOLD TIME	30		3.000	1.414	1.000	5.000
INTO BUSY	110					
OUT OF BUSY	102					
# BUSY		8.000	4.400	2.168	0.	8.000
BUSY TIME			4.020	2.429	1.000	10.000
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	22					
OUT OF WAIT	22					
# WAITING		0.	0.300	0.458	0.	1.000
WAIT TIME			1.384	1.823	0.	5.000

CURRENTLY ALLOCATED TO PROCESSES: PLONG1 PSHRT1 PSHRT1 PSHRT1 PSHRT1

PROCESSES CURRENTLY WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
CPU2						
# IDLE		4.000	2.960	2.731	0.	8.000
REQUEST TIME			0.211	0.554	0.	2.000
HOLD TIME	39		1.615	0.825	0.	2.000
INTO BUSY	155					
OUT OF BUSY	151					
# BUSY		4.000	4.410	2.363	0.	8.000
BUSY TIME			2.841	1.780	0.	7.000
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	31					
OUT OF WAIT	31					

# WAITING		0.	0.188	0.384	0.	2.000
WAIT TIME			0.581	0.908	0.	2.000

CURRENTLY ALLOCATED TO PROCESSES: PSHRT2 PLONG2 PLONG2

PROCESSFS CURRENTLY WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
CPU3						
# IDLE		0.	2.640	2.674	0.	8.000
REQUEST TIME			0.695	1.177	0.	4.000
HOLD TIME	39		1.846	0.662	1.000	3.000
INTO BUSY	122					
OUT OF BUSY	114					
# BUSY		8.000	4.400	2.168	0.	8.000
BUSY TIME			3.596	2.608	0.	10.000
# INACTIVE		0.	0.240	0.814	0.	3.000
INTO WAIT	26					
OUT OF WAIT	26					
# WAITING		0.	0.300	0.458	0.	2.000
WAIT TIME			1.154	1.747	0.	5.000

CURRENTLY ALLOCATED TO PROCESSES: PLONG3 PSHRT3 PSHRT3 PSHRT3 PSHRT3 PSHRT3

PROCESSES CURRENTLY WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
TESTRES						
# IDLE		0.	0.440	1.275	0.	8.000
REQUEST TIME			3.109	4.660	0.	17.000
HOLD TIME	112		1.438	0.998	0.	3.000
INTO BUSY	176					
OUT OF BUSY	168					
# BUSY		7.000	6.930	1.639	0.	8.000
BUSY TIME			3.462	1.112	1.000	5.000

# INACTIVE	0.	0.	0.	0.	0.
INTO WAIT	90				
OUT OF WAIT	87				
# WAITING	3.000	1.520	1.144	0.	5.000
WAIT TIME		1.299	4.273	0.	26.000

CURRENTLY ALLOCATED TO PROCESSES:	ACYCLIC ATEST	ACYCLIC ATEST	ATEST	ATEST	ATEST
PROCESSES CURRENTLY WAITING:	ATEST ATEST	ATEST	ATEST	ATEST	ATEST

SIMULATION TIME = 100.00000 SECONDS

ACTION REPORT

ACTION	TOTAL SAMPLES	MEAN.....	STD DEV...	MINIMUM..	MAXIMUM...	% TIME OF TOTAL.
DELAY						
USEFUL TIME	466	2.135	3.260	1.000	28.000	995.000
DELAY TIME	466	0.039	0.357	0.	4.000	
WASTED TIME	0	0.	0.	0.	0.	

ACTION	TOTAL SAMPLES	MEAN.....	STD DEV...	MINIMUM..	MAXIMUM...	% TIME OF TOTAL.
LNGDELAY						
USEFUL TIME	2	4.000	0.	4.000	4.000	8.000
DELAY TIME	2	4.000	0.	4.000	4.000	
WASTED TIME	2	5.000	1.000	4.000	6.000	

ACTION	TOTAL SAMPLES	MEAN.....	STD DEV...	MINIMUM..	MAXIMUM...	% TIME OF TOTAL.
MEDDELAY						
USEFUL TIME	3	4.000	0.	4.000	4.000	12.000
DELAY TIME	3	3.667	0.471	3.000	4.000	
WASTED TIME	3	5.000	1.414	3.000	6.000	

ACTION	TOTAL SAMPLES	MEAN.....	STD DEV...	MINIMUM..	MAXIMUM...	% TIME OF TOTAL.
SRTDELAY						
USEFUL TIME	2	4.000	0.	4.000	4.000	8.000
DELAY TIME	2	4.000	0.	4.000	4.000	
WASTED TIME	2	5.500	0.500	5.000	6.000	

SIMULATION TIME = 100.00000 SECONDS

PROCESS REPORT

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
ACYCLIC						
TOTAL	0	0.	0.	0.	0.	0.
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	85	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
1	1	0	0	1	0

PROCESS	DESCRIPTION
ACYCLIC	CYCLIC ACTION RESTART CONTROL PROCESS

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
1		START	ALL	NO		
8	LOOP	ENTRY				CYCLE CONTROL LOOP
		•••••••••• ALLOCATE 1-5 ••••••••••				
8		ALLOC	TESTRES	1	PARTIAL	
8			1			
8		DELAY	CONSTANT	1		
8			SECONDS	RESUME		
8		ALLOC	TESTRES	1	PARTIAL	
8			1			
8		DELAY	CONSTANT	1		
8			SECONDS	RESUME		
7		ALLOC	TESTRES	1	PARTIAL	
7			1			
7		DELAY	CONSTANT	1		
7			SECONDS	RESUME		
7		ALLOC	TESTRES	1	PARTIAL	
7			1			
7		DELAY	CONSTANT	1		
7			SECONDS	RESUME		
7		ALLOC	TESTRES	1	PARTIAL	
7			1			
7		DELAY	CONSTANT	1		
7			SECONDS	RESUME		
		•••••••••• DEALLOCATE 5-1 ••••••••••				
7		DEALLOC	TESTRES	1		

```
PAGE   25
     7           DELAY     CONSTANT 1
     7                     SECONDS  RESUME
     7           DEALLOC   TESTRES  1
     7           DELAY     CONSTANT 1
     7                     SECONDS  RESUME
     7           DEALLOC   TESTRES  1
     7           DELAY     CONSTANT 1
     7                     SECONDS  RESUME
     7           DEALLOC   TESTRES  1
     7           DELAY     CONSTANT 1
     7                     SECONDS  RESUME
     7           DEALLOC   TESTRES  1
     7           DELAY     CONSTANT 1
     7                     SECONDS  RESUME
       ********** ALLOCATE 1-4 **********
     7           ALLOC     TESTRES  1         PARTIAL
     7                     1
     7           DELAY     CONSTANT 1
     7                     SECONDS  RESUME
     7           ALLOC     TESTRES  1         PARTIAL
     7                     1
     7           DELAY     CONSTANT 1
     7                     SECONDS  RESUME
     7           ALLOC     TESTRES  1         PARTIAL
     7                     1
     7           DELAY     CONSTANT 1
     7                     SECONDS  RESUME
     7           ALLOC     TESTRES  1         PARTIAL
     7                     1
     7           DELAY     CONSTANT 1
     7                     SECONDS  RESUME
     7           DEALLOC   TESTRES  4
     7           BRANCH    LOOP     100
     0           END
```

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
ATEST						
TOTAL	7	150.000	21.429	9.439	10.000	38.000
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	22	113.000	5.136	7.244	0.	28.000

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
11	0	11	7	4	50

PROCESS DESCRIPTION

ATEST ACTION RESTART PROCESS WHICH GETS INTERRUPTED

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
11		START	ALL	NO		
11		GIVEN	STATACTN			
11		ALLOC	TESTRES	5	PARTIAL	
11			10			
22		STATACTN	CONSTANT	4		
22			SECONDS	RESTART		
7		DEALLOC	TESTRES	5		
7		END				

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
ATRIGGER						
TOTAL	0	0.	0.	0.	0.	0.
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
1	1	0	0	1	0

PROCESS DESCRIPTION

ATRIGGER TRIGGER ACTION RESTART TEST PROCESS

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
1		START	ALL	NO		
4	LOOP	ENTRY				
4		CALL	ATEST	NOWAIT	0	
4		GIVEN	MEDDELAY			
4		DELAY	CONSTANT	12		
4			SECONDS	RESUME		
4		CALL	ATEST	NOWAIT	0	
4		GIVEN	LNGDELAY			
4		DELAY	CONSTANT	13		
4			SECONDS	RESUME		
3		CALL	ATEST	NOWAIT	0	
3		GIVEN	SRTDELAY			
3		DELAY	CONSTANT	3		
3			SECONDS	RESUME		
3		LOOP	LOOP	5		
0		END				

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
INIT1						
TOTAL	1	10.000	10.000	0.	10.000	10.000
PROCESS WAIT	1	10.000	10.000	0.	10.000	10.000
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
1	1	0	1	0	0

PROCESS	DESCRIPTION
INIT1	TEST CALL BLOCK

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
1		START	ALL	NO		
1		ASSIGN	1			INITIALIZE COUNTER
1			L			
11	NEXT	ENTRY				CONTINUE FOR ALL CALLS
11		COMPARE	L		GT	TEST VALUE OF COUNTER
11			V COUNT1		WAIT	
10		CALL	PROCESS1	BLOCK	L	INITIATE PARALLEL INSTANT
10		GIVEN	L			
10		EVAL	L			INCREMENT COUNTER
10			L+1			
10		BRANCH	NEXT	100		BRANCH
1	WAIT	ENTRY				*ENTRY*
1		WAIT				SYNCHRONIZE FOR ALL
1		END				

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
INIT2						
TOTAL	1	10.000	10.000	0.	10.000	10.000
PROCESS WAIT	1	10.000	10.000	0.	10.000	10.000
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
1	1	0	1	0	0

PROCESS	DESCRIPTION

```
PAGE   28
======== ======== ==================================================
INIT2              TEST CALL BLOCK AND NOWAIT

COUNT ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
===== ======== ======== ======== ======== ======== ==========================
    1          START    ALL      NO
    1          ASSIGN   1                          INITIALIZE COUNTER
    1                   L
   11 NEXT     ENTRY                               CONTINUE FOR ALL CALLS
   11          COMPARE  L                 GT       TEST VALUE OF COUNTER
   11                   V COUNT1          WAIT
   10          CALL     PROCESS2 BLOCK    0        INITIATE PARALLEL INSTANT
   10          EVAL     L                          INCREMENT COUNTER
   10                   L+1
   10          BRANCH   NEXT     100               BRANCH
    1 WAIT     ENTRY                               ENTRY
    1          CALL     PROCESS2 NOWAIT   0        SYNCHRONIZE FOR ALL
    1          WAIT
    1          END

                 TOTAL
PROCESS         SAMPLES. SUM....... MEAN...... STD DEV... MINIMUM... MAXIMUM...
=============== ======== ========== ========== ========== ========== ==========
INIT3
          TOTAL        1     60.000     60.000      0.        60.000     60.000
   PROCESS WAIT        0      0.         0.         0.         0.         0.
  RESOURCE WAIT        0      0.         0.         0.         0.         0.

        TOTAL #  # AUTO   # CALL   # OF     # NOT    # TIMES
        SCHEDULE SCHEDULE SCHEDULE COMPLETE COMPLETE SUSPEND.
        ======== ======== ======== ======== ======== ========
              1        1        0        1        0        0

         ITEM     CREATED  RECEIVED SENT     DESTR'D
         ======== ======== ======== ======== ========
         ITEM1          10        0       10        0
         ITEM2          10        0       10        0
         ITEM3          10        0       10        0
         ITEM4          10        0       10        0
         ITEM5          10        0       10        0
         ITEM6          10        0       10        0

                  PROCESS  HOLDING  TIME
         ITEM     # SMPLS  MEAN...... MINIMUM..  MAXIMUM... STD DEV...
         ======== ======== ========== ========== ========== ==========
         ITEM1          10       0.         0.         0.         0.
         ITEM2          10       0.         0.         0.         0.
         ITEM3          10       0.         0.         0.         0.
         ITEM4          10       0.         0.         0.         0.
```

```
        ITEM5           10        0.          0.          0.          0.
        ITEM6           10        0.          0.          0.          0.

PROCESS           DESCRIPTION
========= ========= ========================================================
INIT3             CREATE, SEND, ACTION DELAY FOR 6 ITEMS

COUNT ENTRY     OPCODE    PARM      PARM      PARM      COMMENT
===== ========= ========= ========= ========= ========= ============================
    1           START     ALL       NO
   10 NEXT      ENTRY                                   ENTRY
   10           CREATE    ITEM1
   10           SEND      PROCESS3  ITEM1               SEND AN ITEM TO PROCESS3
   10           DELAY     CONSTANT  1                   ACTION
   10                     SECONDS   RESUME
   10           CREATE    ITEM2
   10           SEND      PROCESS3  ITEM2
   10           DELAY     CONSTANT  1                   ACTION
   10                     SECONDS   RESUME
   10           CREATE    ITEM3
   10           SEND      PROCESS3  ITEM3
   10           DELAY     CONSTANT  1                   ACTION
   10                     SECONDS   RESUME
   10           CREATE    ITEM4
   10           SEND      PROCESS3  ITEM4
   10           DELAY     CONSTANT  1                   ACTION
   10                     SECONDS   RESUME
   10           CREATE    ITEM5
   10           SEND      PROCESS3  ITEM6
   10           DELAY     CONSTANT  1                   ACTION
   10                     SECONDS   RESUME
   10           CREATE    ITEM6
   10           SEND      PROCESS3  ITEM6
   10           DELAY     CONSTANT  1                   ACTION
   10                     SECONDS   RESUME
   10           LOOP      NEXT      V_COUNT1            LOOP V_COUNT1 TIMES - NEXT
    1           END

                 TOTAL
PROCESS          SAMPLES. SUM..... MEAN..... STD DEV... MINIMUM... MAXIMUM...
================ ======== ========= ========= ========= ========= =========
INIT4A
          TOTAL         1       0.        0.        0.        0.        0.
   PROCESS WAIT         0       0.        0.        0.        0.        0.
  RESOURCE WAIT         0       0.        0.        0.        0.        0.

        TOTAL #  # AUTO   # CALL   # OF     # NOT    # TIMES
        SCHEDULE SCHEDULE SCHEDULE COMPLETE COMPLETE SUSPEND.
        ======== ======== ======== ======== ======== ========
```

```
PAGE   30
              1        1        0        1        0        0

         ITEM     CREATED  RECEIVED SENT     DESTR'D
         ======== ======== ======== ======== ========
         AITEM1         10        0       10        0
         AITEM2         10        0       10        0
         AITEM3         10        0       10        0

                   PROCESS  HOLDING  TIME
         ITEM     # SMPLS  MEAN...... MINIMUM..  MAXIMUM... STD DEV...
         ======== ======== ========== ========== ========== ==========
         AITEM1         10       0.         0.         0.         0.
         AITEM2         10       0.         0.         0.         0.
         AITEM3         10       0.         0.         0.         0.

PROCESS           DESCRIPTION
======== ======== ==================================================
INIT4A            CREATE, SEND, LOOP 3 ITEMS

COUNT ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
===== ======== ======== ======== ======== ======== ==========================
    1          START    ALL      NO
   10 NEXT     ENTRY                               ENTRY
   10          CREATE   AITEM1   AITEM2   AITEM3   CREATE 3 ITEMS
   10          SEND     PROCESS4 AITEM1   AITEM2
   10                   AITEM3
   10          LOOP     NEXT     V_COUNT1          LOOP V_COUNT1 TIMES - NEXT
    1          END

                 TOTAL
PROCESS         SAMPLES. SUM....... MEAN...... STD DEV... MINIMUM... MAXIMUM...
=============== ======== ========== ========== ========== ========== ==========
INIT4B
          TOTAL        0      0.         0.         0.         0.         0.
   PROCESS WAIT        0      0.         0.         0.         0.         0.
  RESOURCE WAIT        0      0.         0.         0.         0.         0.

        TOTAL #  # AUTO   # CALL   # OF     # NOT    # TIMES
        SCHEDULE SCHEDULE SCHEDULE COMPLETE COMPLETE SUSPEND.
        ======== ======== ======== ======== ======== ========
              1        1        0        0        1        0

         ITEM     CREATED  RECEIVED SENT     DESTR'D
         ======== ======== ======== ======== ========
         AITEM4          9        0        9        0

                   PROCESS  HOLDING  TIME
         ITEM     # SMPLS  MEAN...... MINIMUM..  MAXIMUM... STD DEV...
         ======== ======== ========== ========== ========== ==========
```

```
        AITEM4          9       0.          0.          0.          0.

PROCESS           DESCRIPTION
======== ======== ========================================================
INIT4B            CREATE, SEND, LOOP WITH DELAY

COUNT ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
===== ======== ======== ======== ======== ======== ============================
    1          START    ALL      NO
   10 NEXT     ENTRY                                ENTRY
   10          DELAY    CONSTANT 10                 ACTION
   10                   SECONDS  RESUME
    9          CREATE   AITEM4                      CREATE
    9          SEND     PROCESS4 AITEM4
    9          LOOP     NEXT     V_COUNT1           LOOP V_COUNT1 TIMES - NEXT
    0          END

                 TOTAL
PROCESS          SAMPLES. SUM..... MEAN..... STD DEV... MINIMUM... MAXIMUM...
================ ======== ========== ========== ========== ========== ==========
PLONG1
          TOTAL          5     50.000     10.000         0.     10.000     10.000
   PROCESS WAIT          0         0.         0.         0.         0.         0.
  RESOURCE WAIT          6         0.         0.         0.         0.         0.

        TOTAL #  # AUTO   # CALL   # OF     # NOT    # TIMES
        SCHEDULE SCHEDULE SCHEDULE COMPLETE COMPLETE SUSPEND.
        ======== ======== ======== ======== ======== ========
               6        6        0        5        1        0

PROCESS           DESCRIPTION
======== ======== ========================================================
PLONG1

COUNT ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
===== ======== ======== ======== ======== ======== ============================
    6          START    ALL      NO
    6          ALLOC    CPU1     5        PARTIAL
    6                   $PRIORTY
    6          DELAY    CONSTANT 5
    6                   SECONDS  RESUME
    6          DEALLOC  CPU1     3
    6          DELAY    CONSTANT 5
    6                   SECONDS  RESUME
    5          DEALLOC  CPU1     2
    5          END

                 TOTAL
PROCESS          SAMPLES. SUM..... MEAN..... STD DEV... MINIMUM... MAXIMUM...
```

PLONG2

TOTAL	5	64.000	12.800	0.980	12.000	14.000
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	15	18.000	1.200	0.980	0.	2.000

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
6	6	0	5	1	9

PROCESS	DESCRIPTION
PLONG2	

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
6		START	ALL	NO		
6		ALLOC	CPU2	5	PARTIAL	
6			$PRIORTY			
15		DELAY	CONSTANT	5		
15			SECONDS	RESUME		
6		DEALLOC	CPU2	3		
6		DELAY	CONSTANT	5		
6			SECONDS	RESUME		
5		DEALLOC	CPU2	2		
5		END				

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
PLONG3						
TOTAL	5	50.000	10.000	0.	10.000	10.000
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	6	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
6	6	0	5	1	0

PROCESS	DESCRIPTION
PLONG3	

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
6		START	ALL	NO		
6		ALLOC	CPU3	5	PARTIAL	

```
     6                  $PRIORTY
     6          DELAY   CONSTANT 5
     6                  SECONDS  RESUME
     6          DEALLOC CPU3     3
     6          DELAY   CONSTANT 5
     6                  SECONDS  RESUME
     5          DEALLOC CPU3     2
     5          END
```

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
PRESETR3						
TOTAL	0	0.	0.	0.	0.	0.
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	4	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
1	1	0	0	1	0

PROCESS	DESCRIPTION
PRESETR3	

```
COUNT ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
-----------------------------------------------------------
    1          START    ALL      NO
    1 LOOP     ENTRY
    1          DELAY    CONSTANT 2
    1                   SECONDS  RESUME
    4 LOOP1    ENTRY
    4          RESET    CPU3     -3
    4          DELAY    CONSTANT 2
    4                   SECONDS  RESUME
    4          RESET    CPU3     3
    4          DELAY    CONSTANT 28
    4                   SECONDS  RESUME
    3          LOOP     LOOP1    20
    0          END
```

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
PROCESS1						
TOTAL	10	55.000	5.500	2.872	1.000	10.000
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
10	0	10	10	0	0

PROCESS	DESCRIPTION
PROCESS1	GIVEN-TIME, ACTION DELAY

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
10		START	ALL	NO		
10		GIVEN	TIME			
10		DELAY	CONSTANT	TIME		ACTION
10			SECONDS	RESUME		
10		END				

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
PROCESS2						
TOTAL	11	110.000	10.000	0.	10.000	10.000
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
11	0	11	11	0	0

PROCESS	DESCRIPTION
PROCESS2	ACTION DELAY (CONSTANT)

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
11		START	ALL	NO		
11		DELAY	CONSTANT	10		
11			SECONDS	RESUME		
11		END				

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
PROCESS3						
TOTAL	10	0.	0.	0.	0.	0.
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	0	0.	0.	0.	0.	0.

PAGE 35

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
10	10	0	10	0	0

ITEM	CREATED	RECEIVED	SENT	DESTR'D
ITEM1	0	10	0	10
ITEM2	0	10	0	10
ITEM3	0	10	0	10
ITEM4	0	10	0	10
ITEM5	0	10	0	10
ITEM6	0	10	0	10

ITEM	PROCESS # SMPLS	HOLDING TIME MEAN.....	MINIMUM..	MAXIMUM...	STD DEV...
ITEM1	10	5.00	5.00	5.00	0.
ITEM2	10	4.00	4.00	4.00	0.
ITEM3	10	3.00	3.00	3.00	0.
ITEM4	10	2.00	2.00	2.00	0.
ITEM5	10	1.00	1.00	1.00	0.
ITEM6	10	0.	0.	0.	0.

ITEM	TOTAL # SENT TO PROCESS	-- NUMBER IN RECEIVE POOL -- CURRENT	AVERAGE	MAXIMUM	AVG DELAY TIME DUE TO ITEM	MAX DELAY TIME DUE TO ITEM
ITEM1	10	0	0.60	1.00	0.	0.
ITEM2	10	0	0.40	1.00	1.00	1.00
ITEM3	10	0	0.30	1.00	2.00	2.00
ITEM4	10	0	0.20	1.00	3.00	3.00
ITEM5	10	0	0.10	1.00	4.00	4.00
ITEM6	10	0	0.	1.00	5.00	5.00

PROCESS	DESCRIPTION
PROCESS3	RECEIVE AND DESTROY ITEMS -- SERIAL # NO MATCH

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
10		START	ALL	NO		
10		RECEIVE	ITEM1	ITEM2	ITEM3	
10			ITEM4	ITEM5	ITEM6	
10		DESTROY	ITEM1	ITEM2	ITEM3	DESTROY ALL SIX ITEMS
10			ITEM4	ITEM5	ITEM6	
10		END				

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
PROCESS4						
TOTAL	9	0.	0.	0.	0.	0.
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
9	9	0	9	0	0

ITEM	CREATED	RECEIVED	SENT	DESTR'D
AITEM1	0	0	0	9
AITEM2	0	0	0	9
AITEM3	0	0	0	9
AITEM4	0	0	0	9

ITEM	PROCESS # SMPLS	HOLDING TIME MEAN.....	MINIMUM..	MAXIMUM...	STD DEV...
AITEM1	9	50.00	10.00	90.00	25.82
AITEM2	9	50.00	10.00	90.00	25.82
AITEM3	9	50.00	10.00	90.00	25.82
AITEM4	9	0.	0.	0.	0.

ITEM	TOTAL # SENT TO PROCESS	-- NUMBER IN RECEIVE POOL -- CURRENT	AVERAGE	MAXIMUM	AVG DELAY TIME DUE TO ITEM	MAX DELAY TIME DUE TO ITEM
AITEM1	19	1	5.50	10.00	0.	0.
AITEM2	19	1	5.50	10.00	0.	0.
AITEM3	19	1	5.50	10.00	0.	0.
AITEM4	18	0	0.	1.00	0.	0.

PROCESS	DESCRIPTION
PROCESS4	RECEIVE AND DESTROY 4 ITEMS -- SERIAL # MATCH

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
9		START	ALL	NO	MATCH	
9		RECEIVE	AITEM1	AITEM2	AITEM3	
9			AITEM4			
9		DESTROY	AITEM1	AITEM2	AITEM3	DESTROY 4 ITEMS
9			AITEM4			
9		END				

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
PSHRT1						
TOTAL	14	92.000	6.571	1.801	5.000	10.000
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	16	30.000	1.875	1.900	0.	5.000

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
16	16	0	14	2	0

PROCESS	DESCRIPTION
PSHRT1	

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
16		START	ALL	NO		
16		ALLOC	CPU1	5	PARTIAL	
16			$PRIORTY			
16		DELAY	CONSTANT	1		
16			SECONDS	RESUME		
15		DEALLOC	CPU1	1		
15		DELAY	CONSTANT	1		
15			SECONDS	RESUME		
15		DEALLOC	CPU1	1		
15		DELAY	CONSTANT	1		
15			SECONDS	RESUME		
15		DEALLOC	CPU1	1		
15		DELAY	CONSTANT	1		
15			SECONDS	RESUME		
15		DEALLOC	CPU1	1		
15		DELAY	CONSTANT	1		
15			SECONDS	RESUME		
14		DEALLOC	CPU1	1		
14		END				

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
PSHRT2						
TOTAL	15	75.000	5.000	0.	5.000	5.000
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	16	0.	0.	0.	0.	0.

TOTAL #	# AUTO	# CALL	# OF	# NOT	# TIMES

```
PAGE   38
        SCHEDULE SCHEDULE SCHEDULE COMPLETE COMPLETE SUSPEND.
        ======== ======== ======== ======== ======== ========
              16       16        0       15        1        0

PROCESS           DESCRIPTION
======== ======== ============================================================
PSHRT2

COUNT ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
===== ======== ======== ======== ======== ======== ============================
   16           START    ALL      NO
   16           ALLOC    CPU2     5        PARTIAL
   16                    1
   16           DELAY    CONSTANT 1
   16                    SECONDS  RESUME
   16           DEALLOC  CPU2     1
   16           DELAY    CONSTANT 1
   16                    SECONDS  RESUME
   16           DEALLOC  CPU2     1
   16           DELAY    CONSTANT 1
   16                    SECONDS  RESUME
   16           DEALLOC  CPU2     1
   16           DELAY    CONSTANT 1
   16                    SECONDS  RESUME
   15           DEALLOC  CPU2     1
   15           DELAY    CONSTANT 1
   15                    SECONDS  RESUME
   15           DEALLOC  CPU2     1
   15           END

                 TOTAL
PROCESS          SAMPLES. SUM..... MEAN..... STD DEV... MINIMUM... MAXIMUM...
================ ======== ========== ========== ========== ========== ==========
PSHRT3
          TOTAL        14     92.000      6.571      1.801      5.000     10.000
   PROCESS WAIT         0         0.         0.         0.         0.         0.
  RESOURCE WAIT        16     30.000      1.875      1.900         0.      5.000

        TOTAL #  # AUTO   # CALL   # OF     # NOT    # TIMES
        SCHEDULE SCHEDULE SCHEDULE COMPLETE COMPLETE SUSPEND.
        ======== ======== ======== ======== ======== ========
              16       16        0       14        2        3

PROCESS           DESCRIPTION
======== ======== ============================================================
PSHRT3

COUNT ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
===== ======== ======== ======== ======== ======== ============================
```

```
PAGE   39
    16          START    ALL       NO
    16          ALLOC    CPU3      5          PARTIAL
    16                   2
    16          DELAY    CONSTANT  1
    16                   SECONDS   RESUME
    15          DEALLOC  CPU3      1
    15          DELAY    CONSTANT  1
    15                   SECONDS   RESUME
    15          DEALLOC  CPU3      1
    15          DELAY    CONSTANT  1
    15                   SECONDS   RESUME
    15          DEALLOC  CPU3      1
    15          DELAY    CONSTANT  1
    15                   SECONDS   RESUME
    15          DEALLOC  CPU3      1
    15          DELAY    CONSTANT  1
    15                   SECONDS   RESUME
    14          DEALLOC  CPU3      1
    14          END
```

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
TRACE						
TOTAL	0	0.	0.	0.	0.	0.
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
0	0	0	0	0	0

PROCESS	DESCRIPTION
TRACE	

```
COUNT ENTRY    OPCODE   PARM      PARM      PARM      COMMENT
    0          START    ALL       NO
    0          COMPARE  C_TRACE             EQ
    0                   0                   END
    0          TRACE    ON
    0          TRACE    ON
    0 END      ENTRY
    0          END
```

APPENDIX C

Results Verification for

TESTDBB.DBF

04/20/1987 19:25:46

TESTDBB

TEST KEYWORDS, PARAMETER PASSING, AND READ/WRITE.

PAGE 9

SIMULATION TIME = 100.00000 SECONDS

VARIABLE REPORT

NUMERIC VARIABLES...

VARIABLE	TOTAL SAMPLES.	VALUE CURRENT...	VALUE MEAN.....	VALUE STD DEV...	VALUE MINIMUM...	VALUE MAXIMUM...
V_CLOCK1	2	0.	0.	0.	0.	0.
V_CLOCK2	3	0.	0.	0.	0.	0.

NON-NUMERIC VARIABLES...

VARIABLE	CURRENT TYPE	CURRENT VALUE
V_CHNL	RESOURCE	CHNL
V_CNODE	RESOURCE	A
V_NXTND	RESOURCE	B

PAGE 10

SIMULATION TIME = 100.00000 SECONDS

RESOURCE REPORT

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
A						
# IDLE		1.000	0.900	0.300	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	3					
OUT OF BUSY	3					
# BUSY		0.	0.100	0.300	0.	1.000
BUSY TIME			3.333	4.714	0.	10.000
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	3					
OUT OF WAIT	3					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED TO PROCESSES: NONE

PROCESSES CURRENTLY WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
B						
# IDLE		1.000	1.000	0.	1.000	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	1					
OUT OF BUSY	1					
# BUSY		0.	0.	0.	0.	0.
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	1					
OUT OF WAIT	1					
# WAITING		0.	0.	0.	0.	0.

WAIT TIME		0.	0.	0.	0.

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
C						
# IDLE		1.000	1.000	0.	1.000	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	0					
OUT OF BUSY	0					
# BUSY		0.	0.	0.	0.	0.
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	0					
OUT OF WAIT	0					
# WAITING		0.	0.	0.	0.	0.
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
C1						
# IDLE		1.000	1.000	0.	1.000	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	0					
OUT OF BUSY	0					
# BUSY		0.	0.	0.	0.	0.
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.

INTO WAIT	0					
OUT OF WAIT	0					
# WAITING		0.	0.	0.	0.	0.
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
CHNL						
# IDLE		1.000	1.000	0.	1.000	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	1					
OUT OF BUSY	1					
# BUSY		0.	0.	0.	0.	0.
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	1					
OUT OF WAIT	1					
# WAITING		0.	0.	0.	0.	0.
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

SIMULATION TIME = 100.00000 SECONDS

ACTION REPORT

ACTION	TOTAL SAMPLES	MEAN.....	STD DEV...	MINIMUM..	MAXIMUM...	% TIME OF TOTAL.
ADELAY						
USEFUL TIME	2	0.	0.	0.	0.	0.
DELAY TIME	2	0.	0.	0.	0.	
WASTED TIME	0	0.	0.	0.	0.	

ACTION	TOTAL SAMPLES	MEAN.....	STD DEV...	MINIMUM..	MAXIMUM...	% TIME OF TOTAL.
BDELAY						
USEFUL TIME	1	0.	0.	0.	0.	0.
DELAY TIME	1	0.	0.	0.	0.	
WASTED TIME	0	0.	0.	0.	0.	

ACTION	TOTAL SAMPLES	MEAN.....	STD DEV...	MINIMUM..	MAXIMUM...	% TIME OF TOTAL.
REPLY						
USEFUL TIME	1	10.000	0.	10.000	10.000	10.000
DELAY TIME	1	0.	0.	0.	0.	
WASTED TIME	0	0.	0.	0.	0.	

ACTION	TOTAL SAMPLES	MEAN.....	STD DEV...	MINIMUM..	MAXIMUM...	% TIME OF TOTAL.
TRANSFER						
USEFUL TIME	1	0.	0.	0.	0.	0.
DELAY TIME	1	0.	0.	0.	0.	
WASTED TIME	0	0.	0.	0.	0.	

SIMULATION TIME = 100.00000 SECONDS

PROCESS REPORT

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
APROC						
TOTAL	1	10.000	10.000	0.	10.000	10.000
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	3	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
1	1	0	1	0	0

PROCESS DESCRIPTION

APROC

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
1		START	A	NO		
1		ALLOC	$CNODE	1	ALL	TEST $CNODE IN ALLOC CONTX
1			$PRIORTY			
1		ADELAY	CONSTANT $CLOCK			TEST $CLOCK IN ACTION MEAN
1			SECONDS	RESUME		
1		ADELAY	CONSTANT 0			
1			SECONDS	RESUME		
1		ASSIGN	$CNODE			TEST ASSIGNMENT OF $CNODE
1			L CNODE			
1		ASSIGN	$CNODE			TEST ASSIGNMENT $CNODE
1			V CNODE			
1		READ	FILE1	EOF		TEST READING OF $CNODE
1			$CNODE			
1		WRITE	FILE2			TEST WRITING OF $CNODE
1			$CNODE			
1		ASSIGN	BPROC			TEST PROCESS TO LOCAL
1			NEXT			
1		ASSIGN	$NODE	NEXT		TEST $NODE EVALUATION
1			LB1			
1		ASSIGN	$NODE	BPROC		TEST $NODE GLOBAL TO LOCAL
1			LB2			
1		ASSIGN	$NODE	EPROC		TEST $NXTNODE
1			LB3			
1		COMPARE	LB1		EQ	TEST ASSIGNMENT & COMPARE
1			LB2		NI	

```
     0          BRANCH   N1        100
     1 N1       ENTRY
     1          ASSIGN   $NXTNODE  LB1             TEST $NXTNODE
     1                   LB3
     1          ASSIGN   $NXTNODE  LB2
     1                   V_NEXT
     1          COMPARE  LB3                EQ     TEST $NXTNODE TO LOCAL
     1                   V_NEXT             N2
     0          BRANCH   N2        100
     1 N2       ENTRY
     1          ASSIGN   $LINK     B               TEST $LINK TO LOCAL RES.
     1                   L1_CHNL
     1          ASSIGN   $LINK     LB3             TEST $LINK TO LOCAL
     1                   L2_CHNL
     1          ASSIGN   $LINK     V_NEXT          TEST $LINK GLOBAL
     1                   V_CHNL
     1          COMPARE  $CNODE             EQ     TEST COMPARE CONTXT $CNODE
     1                   $CNODE             A1
     0          BRANCH   A1        100
     1 A1       ENTRY
     1          COMPARE  L_CNODE            EQ     TEST CONTEXT $CNODE TO LOC
     1                   $CNODE             A2
     0          BRANCH   A2        100
     1 A2       ENTRY
     1          COMPARE  $CNODE             EQ     TEST CONTEXT $CNODE-GLOBAL
     1                   V_CNODE            A3
     0          BRANCH   A3        100
     1 A3       ENTRY
     1          COMPARE  L_NXTND            EQ     TEST $NXTNODE GLOBAL-LOCAL
     1                   V_NXTND            A4
     1          BRANCH   A4        100
     1 A4       ENTRY
     1          COMPARE  L1_CHNL            EQ     TEST $LINK COMPARE
     1                   L2_CHNL            A5
     0          BRANCH   A5        100
     1 A5       ENTRY
     1          COMPARE  V_CHNL             EQ     TEST ASSIGN $LINK
     1                   L1_CHNL            A6
     0          BRANCH   A6        100
     1 A6       ENTRY
     1          TEST     L2_CHNL   A7              AVAILABILITY OF $LINK
     1          BRANCH   A7        100
     1 A7       ENTRY
     1          ALLOC    L2_CHNL   1         ALL   SWITCH BUSY FLAG ON CHNL
     1                   $PRIORTY
     1          READ     FILE1     EOF             TEST READING ALL ATTRIBUTE
     1                   L2_CHNL   []
     1          WRITE    FILE2                     TEST WRITING SPEED ATTR OF
     1                   L2_CHNL   SPEED
```

```
PAGE   16
     1            READ      FILE1     EOF                 TEST READING RESOURCE NAME
     1                      RESOURCE
     1            WRITE     FILE2                         TEST WRITING LOCAL
     1                      RESOURCE
     1            TEST      L2_CHNL   A8                  TEST SHOULD FAIL
     0            BRANCH    A8        100
     1 A8         ENTRY
     1            DEALLOC   $CNODE    1                   RELEASE CURRENT NODE
     1            TRANSFER  CONSTANT  $CLOCK              TRANSFER DATA OVER CHANNEL
     1                      SECONDS   RESUME
     1            DEALLOC   L2_CHNL   1                   RELEASE CURRENT CHANNEL
     1            WRITE     FILE2                         WRITE $PRIORTY
     1                      $PRIORTY
     1            WRITE     FILE2                         WRITE $CLOCK
     1                      $CLOCK
     1            WRITE     FILE2                         WRITE $TASK
     1                      $TASK
     1            CALL      BPROC     NOWAIT    0         TEST PARAMETER BINDING
     1            GIVEN     $CLOCK    $CNODE    $TASK
     1 EOF        ENTRY                                   TEST BINDING OF $TASK
     1            SUSPEND
     1            END
```

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
BPROC						
TOTAL	1	10.000	10.000	0.	10.000	10.000
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	2	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
1	0	1	1	0	0

PROCESS DESCRIPTION

BPROC

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
1		START	B	NO		
1		GIVEN	LCLOCK	LNODE	LTASK	
1		ASSIGN	$NODE	BPROC		LET CURRENT NODE REGISTER
1			$CNODE			
1		ALLOC	$CNODE	1	ALL	MAKE B BUSY
1			$PRIORTY			
1		BDELAY	CONSTANT	$CLOCK		

```
PAGE   17
     1                    SECONDS  RESUME
     1          TEST      $CNODE   B1                  TEST AVAILABILITY OF B
     0          BRANCH    B1       100
     1 B1       ENTRY
     1          DEALLOC   $CNODE   1
     1          EVAL      L1                           TEST EVAL CONTEXT $CLOCK
     1                    0+$CLOCK
     1          EVAL      L2
     1                    $CLOCK-0
     1          COMPARE   L1                EQ
     1                    L2                B2
     0          BRANCH    B2       100
     1 B2       ENTRY
     1          EVAL      V_CLOCK1                     EVAL GLOBAL VARIABLE TEST
     1                    0+$CLOCK
     1          EVAL      V_CLOCK2
     1                    0-$CLOCK
     1          EVAL      V_CLOCK2                     EVAL ABSOLUTE $CLOCK
     1                    ABSOLUTE(V_CLOCK2)
     1          COMPARE   V_CLOCK1          EQ         TEST ARITHMETIC CONTEXT
     1                    V_CLOCK2          B3
     0          BRANCH    B3       100
     1 B3       ENTRY
     1          ALLOC     LNODE    1        ALL       ALLOCATE PASSED PARAMETER
     1                    $PRIORTY
     1          REPLY     CONSTANT 10
     1                    SECONDS  RESUME
     1          TEST      LNODE    B4                  TEST AVAILABILITY OF RES.
     0          BRANCH    B4       100
     1 B4       ENTRY
     1          DEALLOC   LNODE    1                   FREE UP CHANNEL
     1          RESUME    LTASK               RESTART PARENT PROCESS
     1          END
```

C-40

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
TRACE						
TOTAL	1	0.	0.	0.	0.	0.
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
1	1	0	1	0	0

PROCESS	DESCRIPTION

TRACE TURN ON THE TRACE CAPABILITY

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
1		START	ALL	NO		
1		TRACE	ON			
1		TRACE	ON			
1		END				

APPENDIX C

Results Verification for

TESTDBC.DBF

04/20/1987 19:27:04

TESTDBC

TEST BATCH MODE PROCESSING

PAGE 8

SIMULATION TIME = 1400.00000 SECONDS

VARIABLE REPORT

NUMERIC VARIABLES...

VARIABLE	TOTAL SAMPLES.	VALUE CURRENT...	VALUE MEAN.....	VALUE STD DEV...	VALUE MINIMUM...	VALUE MAXIMUM...
GAMMA1	1	300.000	300.000	0.	300.000	300.000
GAMMA2	1	0.001	0.001	0.	0.001	0.001

NON-NUMERIC VARIABLES...

VARIABLE	CURRENT TYPE	CURRENT VALUE

PAGE 9

SIMULATION TIME = 1400.00000 SECONDS

ITEM REPORT

ITEM NAME	NUMBER CREATED	NUMBER DESTR'D	TIME IN SYSTEM MINIMUM...	MAXIMUM...	AVERAGE...	STD DEV...
MSG	400	400	0.09	26.16	4.99	7.18

PAGE 10

SIMULATION TIME = 1400.00000 SECONDS

QUEUE REPORT

QUEUE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
BUFFER						
FILED ON	400					
REMOVED FROM	400					
# IN QUEUE		0.	1.343	4.369	0.	24.000
TIME IN QUEUE			4.699	7.185	+3.357E-04	28.097
TASKS BLOCKED	0					
TASKS RESUMED	0					
# BEING BLOCKED		0.	0.	0.	0.	0.
TIME BLOCKED			0.	0.	0.	0.

SIMULATION TIME = 1400.00000 SECONDS

RESOURCE REPORT

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
SEMA						
# IDLE		1.000	0.958	0.201	0.	1.000
REQUEST TIME			0.022	0.057	0.	0.394
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	400					
OUT OF BUSY	400					
# BUSY		0.	0.042	0.201	0.	1.000
BUSY TIME			0.147	0.089	+1.373E-04	0.300
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	400					
OUT OF WAIT	400					
# WAITING		0.	0.006	0.084	0.	2.000
WAIT TIME			0.022	0.057	0.	0.394

CURRENTLY ALLOCATED TO PROCESSES: NONE

PROCESSES CURRENTLY WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
STATION1						
# IDLE		1.000	1.000	0.	1.000	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	0					
OUT OF BUSY	0					
# BUSY		0.	0.	0.	0.	0.
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	0					
OUT OF WAIT	0					
# WAITING		0.	0.	0.	0.	0.

WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
STATION2						
# IDLE		1.000	1.000	0.	1.000	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	0					
OUT OF BUSY	0					
# BUSY		0.	0.	0.	0.	0.
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	0					
OUT OF WAIT	0					
# WAITING		0.	0.	0.	0.	0.
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

SIMULATION TIME = 1400.00000 SECONDS

ACTION REPORT

ACTION	TOTAL SAMPLES	MEAN.....	STD DEV...	MINIMUM..	MAXIMUM...	% TIME OF TOTAL.
READ MSG						
USEFUL TIME	400	0.147	0.089	+1.673E-04	0.300	4.212
DELAY TIME	400	0.	0.	0.	0.	
WASTED TIME	0	0.	0.	0.	0.	

ACTION	TOTAL SAMPLES	MEAN.....	STD DEV...	MINIMUM..	MAXIMUM...	% TIME OF TOTAL.
SENDING						
USEFUL TIME	400	0.147	0.089	+1.373E-04	0.300	4.212
DELAY TIME	400	0.	0.	0.	0.	
WASTED TIME	0	0.	0.	0.	0.	

SIMULATION TIME = 1400.00000 SECONDS

PROCESS REPORT

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
RECEIVE						
TOTAL	4599	58.988	0.013	0.049	0.	0.300
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
4599	4599	0	4599	0	0

ITEM	CREATED	RECEIVED	SENT	DESTR'D
MSG	0	0	0	400

ITEM	PROCESS HOLDING TIME # SMPLS	MEAN.....	MINIMUM..	MAXIMUM...	STD DEV...
MSG	400	0.15	+1.528E-04	0.30	0.09

PROCESS	DESCRIPTION
RECEIVE	RECEIVE MESSAGES FROM TRANSMIT

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
4599		START	STATION2	NO		
4599		TEST	SEMA	ABORT		TEST FOR BUFFER USE
4416		REMOVE	FIRST	MSG	BUFFER	REMOVE BY FIFO DISCIPLINE
4416		COMPARE	MSG		EQ	WHEN MSG=0 BUFFER IS EMPTY
4416			0		ABORT	
400		ASSIGN	MSG	LENGTH		MESSAGE LENGTH IS READ
400			ALPHA			
400		EVAL	MU			CALCULATE RECEPTION TIME
400			ALPHA*GAMMA2			
400		READ_MSG	CONSTANT	MU		TIME TO PROCESS MESSAGE
400			SECONDS	RESUME		
400		DESTROY	MSG			MSG ELIMINATED FROM SYSTEM
4599	ABORT	ENTRY				ENTER FROM COMPARE & TEST
4599		END				

TOTAL

PROCESS	SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
TRANSMIT						
TOTAL	400	67.687	0.169	0.107	+1.373E-04	0.671
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	400	8.718	0.022	0.057	0.	0.394

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
400	400	0	400	0	0

ITEM	CREATED	RECEIVED	SENT	DESTR'D
MSG	400	0	0	0

ITEM	PROCESS HOLDING TIME # SMPLS	MEAN.....	MINIMUM..	MAXIMUM...	STD DEV...
MSG	400	0.15	+1.373E-04	0.30	0.09

PROCESS	DESCRIPTION
TRANSMIT	TRANSMITTING MESSAGES TO RECEIVER

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
400		START	STATION1	NO		
400		ALLOC	SEMA	1	ALL	RESOURCE FOR SENDING MSG
400			$PRIORTY			
400		CREATE	MSG			INTRODUCE MSG INTO SYSTEM
400		EVAL	ALPHA			GENERATE RANDOM NUMBER
400			RANDOM			
400		EVAL	ALPHA			AVERAGE TIME ALPHA
400			ALPHA*GAMMA1			
400		ASSIGN	ALPHA			SET MESSAGE LENGTH
400			MSG	LENGTH		
400		EVAL	MU			CALCULATE TRANSMIT TIME
400			ALPHA*GAMMA2			
400		SENDING	CONSTANT	MU		TIME CONSUMED TRANSMITTING
400			SECONDS	RESUME		
400		FILE	MSG	LAST	BUFFER	STORE MSG ON BUFFER
400		DEALLOC	SEMA	1		RELEASE RESOURCE SEMA
400		END				

APPENDIX C

Results Verification for

TESTDBD.DBF

04/21/1987 09:11:10

TESTDBD

TEST VARIABLE TIME UNITS, MESSAGE ROUTINE, AND RESOURCE LOGIC

SIMULATION TIME = 3600.00000 SECONDS

CONSTANT REPORT

CONSTANT	CURRENT VALUE...
V_TRACE	0.

SIMULATION TIME = 3600.00000 SECONDS

VARIABLE REPORT

NUMERIC VARIABLES...

VARIABLE	TOTAL SAMPLES	VALUE				
		CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
ABDRATE	1	1.000	1.000	0.	1.000	1.000
ABRRATE	1	36000.000	36000.000	0.	36000.000	36000.000
HQRRATE	1	72000.000	72000.000	0.	72000.000	72000.000
TIME1	1	30.000	30.000	0.	30.000	30.000
VRATE	1	1.628	1.628	0.	1.628	1.628

NON-NUMERIC VARIABLES...

VARIABLE	CURRENT TYPE	CURRENT VALUE

PAGE 20

SIMULATION TIME = 3600.00000 SECONDS

ITEM REPORT

ITEM NAME	NUMBER CREATED	NUMBER DESTR'D	TIME IN SYSTEM MINIMUM...	MAXIMUM...	AVERAGE...	STD DEV...
MSG	528	522	22.61	194.86	71.89	38.97

... TIME = 3600.00000 SECONDS

... REPORT

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
AB1						
# IDLE		0.	0.513	0.500	0.	1.000
REQUEST TIME			4.683	5.661	0.	22.000
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	418					
OUT OF BUSY	415					
# BUSY		1.000	0.487	0.500	0.	1.000
BUSY TIME			4.222	2.309	0.	6.000
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	418					
OUT OF WAIT	416					
# WAITING		2.000	0.541	0.973	0.	5.000
WAIT TIME			4.683	5.661	0.	22.000

CURRENTLY ALLOCATED TO PROCESSES: NODEPROC

PROCESSES CURRENTLY WAITING: NODEPROC NODEPROC

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
AB2						
# IDLE		0.	0.513	0.500	0.	1.000
REQUEST TIME			4.319	5.315	0.	22.000
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	416					
OUT OF BUSY	415					
# BUSY		1.000	0.487	0.500	0.	1.000
BUSY TIME			4.222	2.309	0.	6.000
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	418					
OUT OF WAIT	416					
# WAITING		2.000	0.499	0.911	0.	5.000

WAIT TIME		4.319	5.315	0.	22.000

CURRENTLY ALLOCATED TO PROCESSES: NODEPROC

PROCESSES CURRENTLY WAITING: NODEPROC NODEPROC

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
CH1_A						
# IDLE		1.000	0.935	0.247	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	237					
OUT OF BUSY	237					
# BUSY		0.	0.065	0.247	0.	1.000
BUSY TIME			0.994	0.389	0.325	1.221
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	237					
OUT OF WAIT	237					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED TO PROCESSES: NONE

PROCESSES CURRENTLY WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
CH1_B						
# IDLE		1.000	0.966	0.180	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	119					
OUT OF BUSY	119					
# BUSY		0.	0.034	0.180	0.	1.000
BUSY TIME			1.016	0.203	0.814	1.221
# INACTIVE		0.	0.	0.	0.	0.

INTO WAIT	119					
OUT OF WAIT	119					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
CH2_A						
# IDLE		1.000	0.936	0.247	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	237					
OUT OF BUSY	237					
# BUSY		0.	0.065	0.247	0.	1.000
BUSY TIME			0.994	0.389	0.325	1.221
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	237					
OUT OF WAIT	237					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
CH2_B						
# IDLE		1.000	0.966	0.180	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	119					
OUT OF BUSY	119					
# BUSY		0.	0.034	0.180	0.	1.000
BUSY TIME			1.016	0.203	0.814	1.221

# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	119					
OUT OF WAIT	119					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
CH3_A						
# IDLE		1.000	0.990	0.100	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	118					
OUT OF BUSY	118					
# BUSY		0.	0.010	0.100	0.	1.000
BUSY TIME			0.305	+1.105E-05	0.305	0.305
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	118					
OUT OF WAIT	118					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
CH3_B						
# IDLE		1.000	1.000	0.	1.000	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	0					

OUT OF BUSY	0					
# BUSY		0.	0.	0	0.	0.
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	0					
OUT OF WAIT	0					
# WAITING		0.	0.	0.	0.	0.
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED TO PROCESSES: NONE

PROCESSES CURRENTLY WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
CH4_A						
# IDLE		1.000	0.987	0.112	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	238					
OUT OF BUSY	238					
# BUSY		0.	0.013	0.112	0.	1.000
BUSY TIME			0.192	0.112	0.081	0.305
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	238					
OUT OF WAIT	238					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED TO PROCESSES: NONE

PROCESSES CURRENTLY WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
CH4_B						
# IDLE		1.000	0.993	0.082	0.	1.000
REQUEST TIME			0.	0.	0.	0.

HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	120					
OUT OF BUSY	120					
# BUSY		0.	0.007	0.082	0.	1.000
BUSY TIME			0.203	+3.682E-05	0.203	0.203
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	120					
OUT OF WAIT	120					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED TO PROCESSES: NONE

PROCESSES CURRENTLY WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
CH5_A						
# IDLE		1.000	0.999	0.033	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	48					
OUT OF BUSY	48					
# BUSY		0.	0.001	0.033	0.	1.000
BUSY TIME			0.081	+0.856E-04	0.081	0.082
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	48					
OUT OF WAIT	48					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED TO PROCESSES: NONE

PROCESSES CURRENTLY WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
CH5_B						
# IDLE		1.000	0.997	0.052	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	48					
OUT OF BUSY	48					
# BUSY		0.	0.003	0.052	0.	1.000
BUSY TIME			0.203	+0.911E-04	0.203	0.204
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	48					
OUT OF WAIT	48					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED TO PROCESSES: NONE

PROCESSES CURRENTLY WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
CH6_A						
# IDLE		1.000	0.989	0.104	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	48					
OUT OF BUSY	48					
# BUSY		0.	0.011	0.104	0.	1.000
BUSY TIME			0.814	+1.003E-04	0.814	0.814
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	48					
OUT OF WAIT	48					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED TO PROCESSES: NONE

PROCESSES CURRENTLY WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
CH6_B						
# IDLE		1.000	0.996	0.066	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	48					
OUT OF BUSY	48					
# BUSY		0.	0.004	0.066	0.	1.000
BUSY TIME			0.326	+0.848E-04	0.325	0.326
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	48					
OUT OF WAIT	48					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED TO PROCESSES: NONE

PROCESSES CURRENTLY WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
CH7_A						
# IDLE		1.000	0.996	0.066	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	48					
OUT OF BUSY	48					
# BUSY		0.	0.004	0.066	0.	1.000
BUSY TIME			0.326	+0.847E-04	0.325	0.326
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	48					
OUT OF WAIT	48					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED TO PROCESSES: NONE

PROCESSES CURRENTLY WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
CH7_B						
# IDLE		1.000	0.949	0.220	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	166					
OUT OF BUSY	166					
# BUSY		0.	0.061	0.220	0.	1.000
BUSY TIME			1.103	0.184	0.814	1.221
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	166					
OUT OF WAIT	166					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED TO PROCESSES: NONE

PROCESSES CURRENTLY WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
CH8_A						
# IDLE		1.000	0.962	0.191	0.	1.000
REQUEST TIME			0.769	1.047	0.	4.582
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	168					
OUT OF BUSY	168					
# BUSY		0.	0.038	0.191	0.	1.000
BUSY TIME			0.814	+0.614E-04	0.814	0.814
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	168					
OUT OF WAIT	168					
# WAITING		0.	0.038	0.312	0.	6.000
WAIT TIME			0.769	1.047	0.	4.582

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
CH8_B						
# IDLE		1.000	0.945	0.228	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	286					
OUT OF BUSY	286					
# BUSY		0.	0.055	0.228	0.	1.000
BUSY TIME			0.896	0.441	0.325	1.221
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	286					
OUT OF WAIT	286					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
CH9_A						
# IDLE		1.000	1.000	0.	1.000	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	0					
OUT OF BUSY	0					
# BUSY		0.	0.	0.	0.	0.
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	0					
OUT OF WAIT	0					

# WAITING	0.	0.	0.	0.	0.
WAIT TIME		0.	0.	0.	0.

CURRENTLY ALLOCATED TO PROCESSES: NONE

PROCESSES CURRENTLY WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
CH9_B						
# IDLE		1.000	1.000	0.	1.000	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	0					
OUT OF BUSY	0					
# BUSY		0.	0.	0.	0.	0.
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	0					
OUT OF WAIT	0					
# WAITING		0.	0.	0.	0.	0.
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED TO PROCESSES: NONE

PROCESSES CURRENTLY WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
CHQ						
# IDLE		1.000	0.726	0.446	0.	1.000
REQUEST TIME			0.929	1.924	0.	12.670
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	827					
OUT OF BUSY	827					
# BUSY		0.	0.274	0.446	0.	1.000
BUSY TIME			1.192	2.068	0.	6.000
# INACTIVE		0.	0.	0.	0.	0.

INTO WAIT	827					
OUT OF WAIT	827					
# WAITING		0.	0.213	0.653	0.	7.000
WAIT TIME			0.929	1.924	0.	12.570

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
OK1						
# IDLE		1.000	0.998	0.045	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	168					
OUT OF BUSY	168					
# BUSY		0.	0.002	0.045	0.	1.000
BUSY TIME			0.044	0.019	0.004	0.086
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	168					
OUT OF WAIT	168					
# WAITING		0.	0.	0.	0.	1.000
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
HQ						
# IDLE		1.000	0.728	0.445	0.	1.000
REQUEST TIME			1.074	2.373	0.	15.611
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	410					
OUT OF BUSY	410					
# BUSY		0.	0.272	0.445	0.	1.000

BUSY TIME			2.386	2.616	0.	6.000
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	410					
OUT OF WAIT	410					
# WAITING		0.	0.122	0.380	0.	3.000
WAIT TIME			1.074	2.373	0.	15.611

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
L3						
# IDLE		1.000	0.925	0.263	0.	1.000
REQUEST TIME			0.070	0.341	0.	2.225
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	96					
OUT OF BUSY	96					
# BUSY		0.	0.075	0.263	0.	1.000
BUSY TIME			2.800	1.200	1.600	4.000
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	96					
OUT OF WAIT	96					
# WAITING		0.	0.002	0.043	0.	1.000
WAIT TIME			0.070	0.341	0.	2.225

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
SW1						
# IDLE		1.000	0.223	0.416	0.	1.000
REQUEST TIME			30.347	21.264	0.	84.387
HOLD TIME	0		0.	0.	0.	0.

INTO BUSY	594					
OUT OF BUSY	594					
# BUSY		0.	0.777	0.416	0.	1.000
BUSY TIME			4.707	1.746	1.600	6.000
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	594					
OUT OF WAIT	594					
# WAITING		0.	5.007	5.432	0.	22.000
WAIT TIME			30.347	21.254	0.	84.387

CURRENTLY ALLOCATED TO PROCESSES: NONE

PROCESSES CURRENTLY WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
SW2						
# IDLE		1.000	0.729	0.445	0.	1.000
REQUEST TIME			0.374	1.175	0.	7.903
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	214					
OUT OF BUSY	214					
# BUSY		0.	0.271	0.445	0.	1.000
BUSY TIME			4.564	1.783	1.600	6.000
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	214					
OUT OF WAIT	214					
# WAITING		0.	0.022	0.160	0.	2.000
WAIT TIME			0.374	1.175	0.	7.903

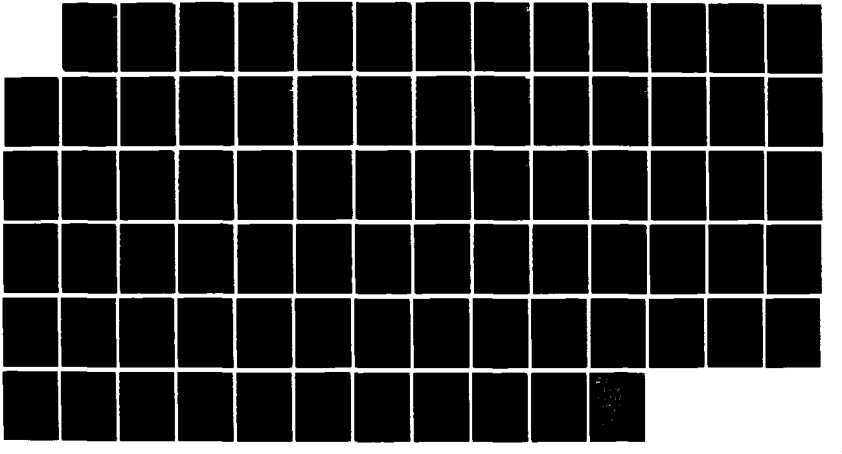
CURRENTLY ALLOCATED TO PROCESSES: NONE

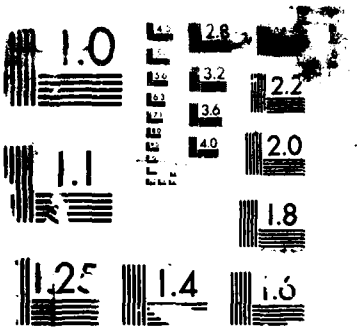
PROCESSES CURRENTLY WAITING: NONE

	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
		1.000	0.642	0.498	0.	1.000

AD-A189 146 AUTOMATED INTERACTIVE SIMULATION MODEL (AISIM) VAX VERSION 50 ACCEPTANCE..(U) HUGHES AIRCRAFT CO FULLERTON CA GROUND SYSTEMS GROUP V ALLERTON ET AL. 29 APR 87 4/4

UNCLASSIFIED 1054474-2 ESD-TR-87-226 F19628-86-C-0070 F/G 12/5 NL





COPY RESOLUTION TEST CHART

PAGE 35

REQUEST TIME			3.858	5.603	0.	24.435
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	454					
OUT OF BUSY	454					
# BUSY		0.	0.458	0.498	0.	1.000
BUSY TIME			3.632	1.742	1.600	6.000
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	454					
OUT OF WAIT	454					
# WAITING		0.	0.487	1.150	0.	7.000
WAIT TIME			3.858	5.603	0.	24.435

CURRENTLY ALLOCATED TO PROCESSES: NONE

PROCESSES CURRENTLY WAITING: NONE

SIMULATION TIME = 3600.00000 SECONDS

ACTION REPORT

ACTION	TOTAL SAMPLES	MEAN.....	STD DEV...	MINIMUM..	MAXIMUM...	% TIME OF TOTAL.
FORMAT						
USEFUL TIME	168	0.002	+4.240E-05	0.002	0.002	0.009
DELAY TIME	168	1.524	2.269	0.	9.664	
WASTED TIME	0	0.	0.	0.	0.	

ACTION	TOTAL SAMPLES	MEAN.....	STD DEV...	MINIMUM..	MAXIMUM...	% TIME OF TOTAL.
LATENCY						
USEFUL TIME	168	0.015	0.009	+0.916E-04	0.030	0.068
DELAY TIME	168	0.	0.	0.	0.	
WASTED TIME	0	0.	0.	0.	0.	

ACTION	TOTAL SAMPLES	MEAN.....	STD DEV...	MINIMUM..	MAXIMUM...	% TIME OF TOTAL.
ROUTE_OH						
USEFUL TIME	2570	4.338	1.876	1.600	6.000	309.667
DELAY TIME	2570	0.	0.	0.	0.	
WASTED TIME	0	0.	0.	0.	0.	

ACTION	TOTAL SAMPLES	MEAN.....	STD DEV...	MINIMUM..	MAXIMUM...	% TIME OF TOTAL.
SEEK						
USEFUL TIME	168	0.029	0.017	+2.441E-04	0.060	0.137
DELAY TIME	168	0.	0.	0.	0.	
WASTED TIME	0	0.	0.	0.	0.	

ACTION	TOTAL SAMPLES	MEAN.....	STD DEV...	MINIMUM..	MAXIMUM...	% TIME OF TOTAL.
UPDATE						
USEFUL TIME	354	0.008	0.005	0.	0.011	0.074
DELAY TIME	354	1.775	3.093	0.	15.611	
WASTED TIME	0	0.	0.	0.	0.	

ACTION	TOTAL SAMPLES	MEAN.....	STD DEV...	MINIMUM..	MAXIMUM...	% TIME OF TOTAL.
XFER						

PAGE 37

USEFUL TIME	168	+2.105E-05	+3.808E-05	0.	+2.441E-04	+0.983E-04
DELAY TIME	168	0.	0.	0.	0.	
WASTED TIME	0	0.	0.	0.	0.	

ACTION	TOTAL SAMPLES	MEAN.....	STD DEV...	MINIMUM..	MAXIMUM...	% TIME OF TOTAL.
XFER OH						
USEFUL TIME	2048	0.694	0.438	0.001	1.221	39.490
DELAY TIME	2048	0.	0.	0.	0.	
WASTED TIME	0	0.	0.	0.	0.	

SIMULATION TIME = 3600.00000 SECONDS

PROCESS REPORT

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
ABUPDATE						
TOTAL	118	0.018	+1.551E-04	+0.781E-04	0.	+2.441E-04
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
118	0	118	118	0	0

ITEM	CREATED	RECEIVED	SENT	DESTR'D
MSG	0	0	0	0

ITEM	PROCESS HOLDING TIME # SMPLS	MEAN.....	MINIMUM..	MAXIMUM...	STD DEV...
MSG	118	+1.551E-04	0.	+2.441E-04	+0.781E-04

PROCESS	DESCRIPTION
ABUPDATE	UPDATE DATA FROM AIRBASE

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
118		START		NO		
118		GIVEN	MSG			
118		RETURN	MSG			
118		UPDATE	CONSTANT	0.1		TIME CONSUMED IN UPDATING
118			MSECONDS	RESUME		
118		END				

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
AB_DATA						
TOTAL	120	0.	0.	0.	0.	0.
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL #	# AUTO	# CALL	# OF	# NOT	# TIMES

SCHEDULE	SCHEDULE	SCHEDULE	COMPLETE	COMPLETE	SUSPEND.
120	120	0	120	0	0

PROCESS	DESCRIPTION
AB_DATA	AIR BASE STATUS BROADCAST TO ALL OTHER NODES

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
120		START		NO		
120		GIVEN	MSG			
120		RETURN	MSG			
120		CALL	MRS	NOWAIT	10	PROCESS REQUEST TO CHQ
120		GIVEN	CHQ_DATA	10	$REQNORE	
120			750	CHQ	MSG	
120		CALL	MRS	NOWAIT	10	PROCESS REQUEST TO HQ
120		GIVEN	HQ_DATA	10	$REQNORE	
120			750	HQ	MSG	
120		ASSIGN	$CNODE			CURRENT NODE
120			CNODE			
120		COMPARE	CNODE		EQ	TEST FOR CURRENT NODE
120			AB1		AB1	
60		CALL	MRS	NOWAIT	10	PROCESS REQUEST TO AB1
60		GIVEN	ABUPDATE	10	$REQNORE	
60			750	AB1	MSG	
60		BRANCH	END	100		BRANCH TO THE END
60	AB1	ENTRY				ENTRY FROM COMPARE NODE
60		CALL	MRS	NOWAIT	10	PROCESS REQUEST TO AB2
60		GIVEN	ABUPDATE	10	$REQNORE	
60			750	AB2	MSG	
120	END	ENTRY				ENTRY FROM REQUEST TO AB1
120		END				

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
AB_REQ						
TOTAL	120	15050.965	125.425	36.615	22.606	194.865
PROCESS WAIT	120	15050.965	125.425	36.615	22.606	194.865
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
120	120	0	120	0	0

PROCESS	DESCRIPTION

AB_REQ AISBASE REQUEST FOR PLANS REPORT FROM CHQ

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
120		START		NO		
120		GIVEN	MSG			
120		RETURN	MSG			
120		CALL	MRS	WAIT	6	PROCESS REQUEST TO CHQ
120		GIVEN	PLANS	5	$REQRESP	
120			200	CHQ	MSG	
120		END				

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
CHANPROC						
TOTAL	2048	79459.036	38.798	33.438	4.814	183.451
PROCESS WAIT	2048	77908.231	38.041	33.523	4.000	183.125
RESOURCE WAIT	2048	129.174	0.063	0.367	0.	4.582

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
2048	0	2048	2048	0	0

ITEM	CREATED	RECEIVED	SENT	DESTR'D
MSG	0	0	0	0

ITEM	PROCESS HOLDING TIME # SMPLS	MEAN.....	MINIMUM..	MAXIMUM...	STD DEV...
MSG	2048	0.78	0.08	5.40	0.58

PROCESS	DESCRIPTION
CHANPROC	FULL AND HALF DUPLEX CHANNEL LOGIC

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
2048		START	ALL	NO		
2048		GIVEN	MSG			
2048		ASSIGN	MSG	CNODE		SET INTERNAL NODE CURRENT
2048			$CNODE			
2048		ASSIGN	MSG	TNODE		GET DESTINATION NODE
2048			TO_NODE			
2048		ASSIGN	$NXTNODE	TO_NODE		SET NEXT NODE TO DESTN
2048			NXT_NODE			
2048		ASSIGN	$CHANNEL	TO_NODE		GET CHANNEL TO NEXT NODE

```
 2048                    CHANNEL
 2048          ALLOC     CHANNEL   1          ALL       OBTAIN CHANNEL FOR XFER
 2048                    $PRIORTY
 2048          ASSIGN    CHANNEL   RATE                 WHAT IS CHANNEL RATE?
 2048                    VSPEED
 2048          ASSIGN    MSG       LENGTH               MESSAGE LENGTH
 2048                    VLENGTH
 2048          EVAL      VM_OVHD                        CALCULATE TRANSFER TIME
 2048                    VSPEED*VLENGTH
 2048          XFER_OH   CONSTANT  VM_OVHD              DELAY DUE TO TRANSFER TIME
 2048                    MSECONDS  RESUME
 2048          ASSIGN    NXT_NODE                       MSG RESIDES IN NEXT NODE
 2048                    MSG       CNODE
 2048          ASSIGN    NXT_NODE                       SET INTERNAL NODE REGISTER
 2048                    $CNODE
 2048          DEALLOC   CHANNEL   1                    FREE UP CHANNEL AFTER XFER
 2048          CALL      NODEPROC  WAIT      0          ROUTE MESSAGE TO NEXT NODE
 2048          GIVEN     MSG
 2048          END
```

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
CHQ_DATA						
TOTAL	118	335.577	2.844	3.260	0.011	12.581
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	103	334.250	3.245	3.284	0.011	12.570

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
118	0	118	118	0	103

ITEM	CREATED	RECEIVED	SENT	DESTR'D
MSG	0	0	0	0

	PROCESS HOLDING TIME				
ITEM	# SMPLS	MEAN.....	MINIMUM..	MAXIMUM...	STD DEV...
MSG	118	2.84	0.01	12.58	3.26

PROCESS	DESCRIPTION
CHQ_DATA	CHQ GETS MESSAGE, FORMULATES RESPONSE, AND REPLIES

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
118		START		NO		

```
PAGE   42
  118          GIVEN    MSG
  118          RETURN   MSG
  118          ASSIGN   MSG       LENGTH              MAKE MSG-LENGTH = V_LENGTH
  118                   V_LENGTH
  118          EVAL     V_TIME                        EVALUATE MSG PROCESS TIME
  118                   .015*V_LENGTH
  205          UPDATE   CONSTANT V_TIME               PROCESSING TIME CONSUMED
  205                   MSECONDS RESUME
  118          END
```

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
DESTPROC						
TOTAL	690	10141.055	14.697	25.949	0.	108.088
PROCESS WAIT	690	9725.128	14.094	25.102	0.	106.124
RESOURCE WAIT	522	415.927	0.797	2.090	0.	22.000

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
690	0	690	690	0	0

ITEM	CREATED	RECEIVED	SENT	DESTR'D
MSG	0	0	0	522

ITEM	PROCESS # SMPLS	HOLDING TIME MEAN.....	MINIMUM..	MAXIMUM...	STD DEV...
MSG	1212	0.34	0.	22.00	1.94

PROCESS	DESCRIPTION
DESTPROC	PROCESSING AT DESTINATION OF MESSAGE

```
COUNT ENTRY     OPCODE    PARM      PARM      PARM      COMMENT
=====================================================================
  690           START     ALL       NO
  690           GIVEN     MSG
  690           ASSIGN    MSG       CNODE               CURRENT NODE
  690                     C_NODE
  690           COMPARE   MSG       TYPE      EQ        IF RESPONSE, DESTROY
  690                     $RESP               DESTROY
  522           ALLOC     C_NODE    1         ALL       ALLOCATE CURRENT NODE
  522                     $PRIORTY
  522           ASSIGN    MSG       RPROC               EXECUTE THE CALLED PROCESS
  522                     PROCESS
  522           ASSIGN    MSG       RPROCPRI            SET PRIORITY FOR REQ PROC
```

```
PAGE   43
  522                    PRIORITY
  622           CALL     PROCESS  WAIT     PRIORITY WAIT UNTIL COMPLETE
  522           GIVEN    MSG
  522           RETURN   MSG
  522           DEALLOC  C_NODE   1                  DEALLOCATE CURRENT NODE
  522           COMPARE  MSG      TYPE     EQ       NO RESPONSE REQ -> DESTROY
  522                    $REQNORE          DESTROY
  168           ASSIGN   $RESP                      CHANGE MSG RESPONSE TYPE
  168                    MSG      TYPE
  168           ASSIGN   MSG      FNODE             SWITCH FROM AND TO NODES
  168                    MSG      TNODE
  168           ASSIGN   MSG      CNODE             CURRENT NODE IS FROM NODE
  168                    MSG      FNODE
  168           CALL     CHANPROC WAIT     0        RETURN MESSAGE TO ORIGIN
  168           GIVEN    MSG
  168           BRANCH   END      100
  522 DESTROY   ENTRY                               TERMINATE MESSAGE AT DEST
  522           DESTROY  MSG                        TERMINATE MSG
  690 END       ENTRY
  690           END
```

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
DISK_OP						
TOTAL	168	7.403	0.044	0.019	0.004	0.086
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	168	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
168	0	168	168	0	0

PROCESS	DESCRIPTION
DISK_OP	OPERATION OF DISK

```
COUNT ENTRY     OPCODE   PARM     PARM     PARM     COMMENT
=====  ========  =======  =======  =======  =======  ============================
  168             START            NO
  168             GIVEN    LENGTH   DISK
  168             ASSIGN   DISK     SPEED            MAKE DISK SPEED = V_SPEED
  168                      V_SPEED
  168             EVAL     XFERTIME                  TRANSFER TIME CALCULATED
  168                      LENGTH/V_SPEED
  168             ALLOC    DISK     1        ALL     DISK ALLOCATED
  168                      $PRIORTY
  168             ASSIGN   DISK     SEEK             MAKE SEEKTIME = SEEK
```

```
PAGE   44
  168                    SEEKTIME
  168          SEEK      UNIFORM   SEEKTIME SEEKTIME TIME FOR SEEK IS CONSUMED
  168                    MSECONDS  RESUME
  168          ASSIGN    DISK      LATENCY           MAKE DISK LATENCY=LATETIME
  168                    LATETIME
  168          LATENCY   UNIFORM   LATETIME LATETIME TIME CONSUMED FOR LATENCY
  168                    MSECONDS  RESUME
  168          XFER      CONSTANT  XFERTIME          TRANSFER TIME CONSUMED
  168                    MSECONDS  RESUME
  168          DEALLOC   DISK      1                 DISK RESOURCE DEALLOCATED
  168          END
```

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
HQ_DATA						
TOTAL	118	318.233	2.697	3.637	0.011	15.622
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	78	316.906	4.063	3.789	0.011	15.611

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
118	0	118	118	0	78

ITEM	CREATED	RECEIVED	SENT	DESTR'D
MSG	0	0	0	0

ITEM	PROCESS HOLDING TIME # SMPLS	MEAN.....	MINIMUM..	MAXIMUM...	STD DEV...
MSG	118	2.70	0.01	15.62	3.64

PROCESS	DESCRIPTION
HQ_DATA	HQ GETS MESSAGE, FORMULATES RESPONSE, AND REPLIES

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
118		START		NO		
118		GIVEN	MSG			
118		RETURN	MSG			
118		ASSIGN	MSG	LENGTH		MAKE MSG-LENGTH = V_LENGTH
118			V_LENGTH			
118		EVAL	V_TIME			EVALUATE MSG PROCESS TIME
118			.015*V_LENGTH			
196		UPDATE	CONSTANT V_TIME			PROCESSING TIME CONSUMED
196			MSECONDS RESUME			

```
PAGE   45
 118          END

                 TOTAL
PROCESS         SAMPLES. SUM....... MEAN...... STD DEV... MINIMUM... MAXIMUM...
=============== ======== ========== ========== ========== ========== ==========
HQ_REQ
          TOTAL       48   1852.078     38.585      9.496     27.754     63.392
   PROCESS WAIT       48   1852.078     38.585      9.496     27.754     63.392
  RESOURCE WAIT        0      0.         0.         0.         0.         0.

        TOTAL #  # AUTO   # CALL   # OF     # NOT    # TIMES
        SCHEDULE SCHEDULE SCHEDULE COMPLETE COMPLETE SUSPEND.
        ======== ======== ======== ======== ======== ========
             48       48        0       48        0        0

PROCESS          DESCRIPTION
======== ======== ==================================================
HQ_REQ           HQ REQUEST FOR STATUS DISPLAY FROM CHQ

COUNT ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
===== ======== ======== ======== ======== ======== ==========================
   48          START    L3       NO
   48          GIVEN    MSG
   48          RETURN   MSG
   48          CALL     MRS      WAIT     4        MAKES I/O REQUEST TO CHQ
   48          GIVEN    PLANS    4        $REQRESP
   48                   200      CHQ      MSG
   48          END

                 TOTAL
PROCESS         SAMPLES. SUM....... MEAN...... STD DEV... MINIMUM... MAXIMUM...
=============== ======== ========== ========== ========== ========== ==========
MRS
          TOTAL      522  37527.085     71.891     38.971     22.606    194.855
   PROCESS WAIT      522  37527.085     71.891     38.971     22.606    194.855
  RESOURCE WAIT        0      0.         0.         0.         0.         0.

        TOTAL #  # AUTO   # CALL   # OF     # NOT    # TIMES
        SCHEDULE SCHEDULE SCHEDULE COMPLETE COMPLETE SUSPEND.
        ======== ======== ======== ======== ======== ========
            528        0      528      522        6        0

        ITEM     CREATED  RECEIVED SENT     DESTR'D
        ======== ======== ======== ======== ========
        MSG           528        0        0        0

                 PROCESS  HOLDING  TIME
        ITEM     # SMPLS  MEAN...... MINIMUM..  MAXIMUM... STD DEV...
        ======== ======== ========== ========== ========== ==========
```

```
        MSG           528       0.          0.          0.          0.

PROCESS           DESCRIPTION
======== ======== ============================================================
MRS               GENERATE A PROCESS REQUEST MESSAGE AND INITIATE I/O

COUNT ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
===== ======== ======== ======== ======== ======== ============================
  528           START    ALL      NO
  528           GIVEN    PROCESS  PRIORITY MSG_TYPE
  528                    MSG_LNTH TO_NODE  MSG
  528           CREATE   MSG                       CREATE MESSAGE
  528           ASSIGN   MSG_LNTH                  SET MESSAGE LENGTH
  528                    MSG      LENGTH
  528           ASSIGN   PROCESS                   SET PROCESS
  528                    MSG      RPROC
  528           ASSIGN   PRIORITY                  SET PRIORITY
  528                    MSG      RPROCPRI
  528           ASSIGN   TO_NODE                   SET DESTINATION
  528                    MSG      TNODE
  528           ASSIGN   MSG_TYPE                  SET MESSAGE TYPE
  528                    MSG      TYPE
  528           CALL     NODEPROC WAIT     0       EXECUTIVE SERVICING OF MSG
  528           GIVEN    MSG
  522           END

                TOTAL
PROCESS         SAMPLES. SUM..... MEAN..... STD DEV... MINIMUM... MAXIMUM...
=============== ======== ========== ========== ========== ========== ==========
NODEPROC
          TOTAL     2570 115435.318     44.918     37.276      4.000    194.865
  PROCESS WAIT      2570  80799.295     31.439     33.477      0.       183.461
  RESOURCE WAIT     2572  23488.016      9.132     16.026      0.        84.387

       TOTAL #  # AUTO   # CALL   # OF     # NOT    # TIMES
       SCHEDULE SCHEDULE SCHEDULE COMPLETE COMPLETE SUSPEND.
       ======== ======== ======== ======== ======== ========
          2576        0     2576     2570        6        0

        ITEM     CREATED  RECEIVED SENT     DESTR'D
        ======== ======== ======== ======== ========
        MSG             0        0        0        0

                 PROCESS  HOLDING  TIME
        ITEM     # SMPLS  MEAN..... MINIMUM.. MAXIMUM... STD DEV...
        ======== ======== ========== ========== ========== ==========
        MSG          2570       13.48       1.60      86.99      16.10

PROCESS           DESCRIPTION
```

NODEPROC NODAL PROCESSING AND ROUTING

```
COUNT ENTRY     OPCODE    PARM      PARM      PARM      COMMENT
===== ========= ========= ========= ========= ========= ============================
 2576           START     ALL       NO
 2576           GIVEN     MSG
 2576           ASSIGN    MSG       CNODE               INDICATE CURRENT NODE
 2576                     C_NODE
 2576           ASSIGN    C_NODE    M_ROUTE             PROCESSING RATE OF NODE
 2576                     RT_OVHD
 2576           ASSIGN    MSG       LENGTH              GET MESSAGE LENGTH
 2576                     MSG_LNTH
 2576           EVAL      OVERHEAD                      COMPUTE PROCESSING DELAY
 2576                     MSG_LNTH*RT_OVHD
 2576           ALLOC     C_NODE    1         ALL       ALLOCATE CURRENT NODE
 2576                     $PRIORTY
 2572           ROUTE_OH  CONSTANT  OVERHEAD            DELAY FOR ROUTING
 2572                     MSECONDS  RESUME
 2570           DEALLOC   C_NODE    1                   RELEASE C_NODE TO OTHERS
 2570           COMPARE   MSG       CNODE     EQ        IS MSG AT DESTINATION?
 2570                     MSG       TNODE     CONTROL
 1880           CALL      CHANPROC  WAIT      0         FORWARD MSG TO CHANNEL
 1880           GIVEN     MSG
 1880           BRANCH    END       100
  690 CONTROL   ENTRY                                   MESSAGE AT DESTINATION
  690           CALL      DESTPROC  WAIT      0         CONTEXT SWITCH MESSAGE
  690           GIVEN     MSG
 2570 END       ENTRY
 2570           END
```

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
PLANS						
TOTAL	168	270.504	1.610	2.265	0.009	9.723
PROCESS WAIT	168	7.403	0.044	0.019	0.004	0.086
RESOURCE WAIT	152	262.765	1.729	1.645	0.011	8.180

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
168	0	168	168	0	152

ITEM	CREATED	RECEIVED	SENT	DESTR'D
MSG	0	0	0	0

PROCESS HOLDING TIME

PAGE 48

ITEM	# SMPLS	MEAN.....	MINIMUM..	MAXIMUM...	STD DEV...
MSG	168	1.61	0.01	9.72	2.28

PROCESS	DESCRIPTION
PLANS	REQUEST FOR PLANS FROM CHQ

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
168		START	CHQ	NO		
168		GIVEN	MSG			
168		RETURN	MSG			
168		ASSIGN	MSG	LENGTH		MAKE MSG LENGTH = V_LENGTH
168			V_LENGTH			
168		EVAL	V_TIME			EVALUATE MSG PROCESS TIME
168			.01*V_LENGTH			
314		FORMAT	CONSTANT V_TIME			TIME USED TO FORMAT PLANS
314			MSECONDS RESUME			
168		CALL	DISK_OP	WAIT	10	CALLING PROCESS DISK_OP
168		GIVEN	500	DK1		
168		ASSIGN	500			INCREASE MSG LENGTH
168			MSG	LENGTH		
168		END				

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
TRACE						
TOTAL	1	0.	0.	0.	0.	0.
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
1	1	0	1	0	0

PROCESS	DESCRIPTION
TRACE	TURN ON TRACE OUTPUT

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
1		START	ALL	NO		
1		COMPARE	V_TRACE		EQ	TEST IF FLAG SET FOR TRACE
1			0		NOTRACE	
0		TRACE	ON			
0		TRACE	ON			

```
PAGE   49
     1 NOTRACE  ENTRY
     1          END
```

APPENDIX C

Results Verification for

TESTDBE.DBF

04/21/1987 09:57:42

TESTDBE

TEST ARITHMETIC FUNCTIONS.

PAGE 16

SIMULATION TIME = 10000.00000 SECONDS

VARIABLE REPORT

NUMERIC VARIABLES...

VARIABLE	TOTAL SAMPLES.	VALUE CURRENT...	VALUE MEAN.....	VALUE STD DEV...	VALUE MINIMUM...	VALUE MAXIMUM...
VABS	2	10.000	10.000	0.	10.000	10.000
VADD	2	10.000	10.000	0.	10.000	10.000
VARCOS	89	2.000	2.000	0.	2.000	2.000
VARCSIN	89	1.142	1.142	+4.012E-08	1.142	1.142
VARCTAN	89	-1.142	-1.142	+2.764E-07	-1.142	-1.142
VBETA	89	0.828	0.777	0.990	0.427	10.000
VBIN	89	100.000	98.882	10.488	0.500	100.000
VCOMP1	2	12.000	6.000	6.000	0.	12.000
VCOMP2	2	53.150	26.575	26.575	0.	53.150
VCOMP3	2	9.000	4.500	4.500	0.	9.000
VCOMP4	2	7.135	3.567	3.567	0.	7.135
VCOS	89	-0.416	-0.416	+1.634E-08	-0.416	-0.416
VCTABLE	8	85.000	50.000	32.977	0.	100.000
VDIV	2	10.000	10.000	0.	10.000	10.000
VDTABLE	8	80.000	47.500	33.072	0.	100.000
VERLANG	89	9.710	11.173	10.250	3.937	100.000
VEXP	89	3.343	8.847	8.990	0.058	53.791
VEXP10	89	100.000	100.000	0.	100.000	100.000
VEXPE	89	100.000	100.000	+1.366E-05	100.000	100.000
VGAMMA	89	9.559	9.829	4.197	2.462	21.478
VLOG10	89	2.000	2.000	0.	2.000	2.000
VLOGE	89	4.605	4.605	+2.107E-08	4.605	4.605
VLOGN	89	18.377	10.271	5.588	2.850	36.699
VMULT	2	10.000	10.000	0.	10.000	10.000
VNBUSYQ	199	2.000	1.980	0.199	0.	2.000
VNIDLEQ	199	0.	0.010	0.141	0.	2.000
VNORMAL	89	15.818	10.415	4.679	-3.137	22.386
VNWAITQ	199	198.000	97.518	56.825	0.	198.000
VPOISSON	89	7.000	11.371	10.998	1.000	110.000
VPOWER	2	10.000	10.000	+1.907E-06	10.000	10.000
VRAN	89	0.660	0.548	0.255	0.009	0.993
VSIN	89	0.909	0.909	+4.280E-08	0.909	0.909
VSQRT	2	10.000	10.000	0.	10.000	10.000
VSUB	2	10.000	10.000	0.	10.000	10.000
VTAN	89	-2.185	-2.185	+2.356E-08	-2.185	-2.185
VUNIFORM	89	9.973	10.321	2.695	5.232	14.917
VWEIBULL	89	5.224	4.916	0.749	3.314	10.000

PAGE 17
NON-NUMERIC VARIABLES...

VARIABLE	CURRENT TYPE	CURRENT VALUE
========	========	========

SIMULATION TIME = 10000.00000 SECONDS

RESOURCE REPORT

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
RES1						
# IDLE		0.	0.019	0.194	0.	2.000
REQUEST TIME			2494.253	1432.088	0.	4900.461
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	200					
OUT OF BUSY	198					
# BUSY		2.000	1.981	0.194	0.	2.000
BUSY TIME			100.000	+4.882E-05	100.000	100.000
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	396					
OUT OF WAIT	200					
# WAITING		196.000	97.386	56.390	0.	198.000
WAIT TIME			2494.253	1432.088	0.	4900.461

CURRENTLY ALLOCATED TO PROCESSES: OFD11 OFD11

PROCESSES CURRENTLY WAITING:

OFD11	OFD11	OFD11	OFD11	OFD11
OFD11	OFD11	OFD11	OFD11	OFD11
OFD11	OFD11	OFD11	OFD11	OFD11
OFD11	OFD11	OFD11	OFD11	OFD11
OFD11	OFD11	OFD11	OFD11	OFD11
OFD11	OFD11	OFD11	OFD11	OFD11
OFD11	OFD11	OFD11	OFD11	OFD11
OFD11	OFD11	OFD11	OFD11	OFD11
OFD11	OFD11	OFD11	OFD11	OFD11
OFD11	OFD11	OFD11	OFD11	OFD11
OFD11	OFD11	OFD11	OFD11	OFD11
OFD11	OFD11	OFD11	OFD11	OFD11
OFD11	OFD11	OFD11	OFD11	OFD11
OFD11	OFD11	OFD11	OFD11	OFD11
OFD11	OFD11	OFD11	OFD11	OFD11
OFD11	OFD11	OFD11	OFD11	OFD11
OFD11	OFD11	OFD11	OFD11	OFD11
OFD11	OFD11	OFD11	OFD11	OFD11
OFD11	OFD11	OFD11	OFD11	OFD11
OFD11	OFD11	OFD11	OFD11	OFD11

OFD11	OFD11	OFD11	OFD11	OFD11

SIMULATION TIME = 10000.00000 SECONDS

ACTION REPORT

ACTION	TOTAL SAMPLES	MEAN.....	STD DEV...	MINIMUM..	MAXIMUM...	% TIME OF TOTAL.
EVALUATE						
USEFUL TIME	361	62.645	39.195	0.365	181.563	226.149
DELAY TIME	361	0.	0.	0.	0.	
WASTED TIME	0	0.	0.	0.	0.	

ACTION	TOTAL SAMPLES	MEAN.....	STD DEV...	MINIMUM..	MAXIMUM...	% TIME OF TOTAL.
PROCESS						
USEFUL TIME	581	83.018	61.208	0.	327.750	482.337
DELAY TIME	581	0.	0.	0.	0.	
WASTED TIME	0	0.	0.	0.	0.	

SIMULATION TIME = 10000.00000 SECONDS

PROCESS REPORT

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
OFD1						
TOTAL	86	7759.167	90.223	77.500	0.451	327.750
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
88	88	0	86	2	0

PROCESS	DESCRIPTION
OFD1	TEST EXPONENTIAL DISTRIBUTION AND COMPARE

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
88		START	ALL	NO		
88		CALL	OFDINIT	NOWAIT	0	INITIATE ODS 0-10
88		PROCESS	EXPONENT	100.0		TEST EXPONENTIAL ACTION
88			SECONDS	RESUME		
86		ASSIGN	1.0			
86			LOCAL1			
86		ASSIGN	2.0			
86			LOCAL2			
86		ASSIGN	3.0			
86			LOCAL3			
86	TESTEQ	ENTRY				TEST COMPARE EQ
86		COMPARE	LOCAL1		EQ	
86			LOCAL2		EQTEST	
86		BRANCH	EQTEST	100		TEST FALL THRU
86	EQTEST	ENTRY				
86		COMPARE	LOCAL3		EQ	
86			LOCAL3		TESTNE	
0		BRANCH	TESTNE	100		TEST FALL THRU
86	TESTNE	ENTRY				TEST COMPARE NE
86		COMPARE	LOCAL3		NE	
86			LOCAL3		NETEST	
86		BRANCH	NETEST	100		
86	NETEST	ENTRY				
86		COMPARE	LOCAL1		NE	
86			LOCAL2		TESTLT	

```
PAGE   22
     0            BRANCH   TESTLT   100                TEST FALL THRU
    86 TESTLT     ENTRY                                TEST COMPARE LT
    86            COMPARE  LOCAL3            LT
    86                     LOCAL1            LTTEST
    86            BRANCH   LTTEST   100                TEST FALL THRU
    86 LTTEST     ENTRY
    86            COMPARE  LOCAL1            LT
    86                     LOCAL3            TESTGT
     0            BRANCH   TESTGT   100                TEST FALL THRU
    86 TESTGT     ENTRY                                TEST COMPARE GT
    86            COMPARE  LOCAL1            GT
    86                     LOCAL2            GTTEST
    86            BRANCH   GTTEST   100                TEST FALL THRU
    86 GTTEST     ENTRY
    86            COMPARE  LOCAL2            GT
    86                     LOCAL1            TESTLE
     0            BRANCH   TESTLE   100                TEST FALL THRU
    86 TESTLE     ENTRY                                TEST COMPARE LE
    86            COMPARE  LOCAL3            LE
    86                     LOCAL1            LETEST1
    86            BRANCH   LETEST1  100                TEST FALL THRU
    86 LETEST1    ENTRY
    86            COMPARE  LOCAL2            LE
    86                     LOCAL2            LETEST2
     0            BRANCH   LETEST2  100                TEST FALL THRU
    86 LETEST2    ENTRY
    86            COMPARE  LOCAL1            LE
    86                     LOCAL3            TESTGE
     0            BRANCH   TESTGE   100                TEST FALL THRU
    86 TESTGE     ENTRY                                TEST COMPARE GE
    86            COMPARE  LOCAL1            GE
    86                     LOCAL3            GETEST1
    86            BRANCH   GETEST1  100                TEST FALL THRU
    86 GETEST1    ENTRY
    86            COMPARE  LOCAL2            GE
    86                     LOCAL2            GETEST2
     0            BRANCH   GETEST2  100                 TEST FALL THRU
    86 GETEST2    ENTRY
    86            COMPARE  LOCAL3            GE
    86                     LOCAL1            TESTEND
     0            BRANCH   TESTEND  100                 TEST FALL THRU
    86 TESTEND    ENTRY                                 END OFD COMPARE TESTING
    86            END

                   TOTAL
PROCESS           SAMPLES. SUM..... MEAN..... STD DEV... MINIMUM... MAXIMUM...
================ ======== ========== ========== ========== ========== ==========
OFD10
          TOTAL        88       0.         0.         0.         0.         0.
```

PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
88	0	88	88	0	0

PROCESS	DESCRIPTION
OFD10	TEST INTERVAL SCHEDULE AND EVAL TRIG FUNCTIONS

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
88		START	ALL	NO		
88		EVAL	VLOG10			
88			LOG10(100.0)			
88		EVAL	VEXP10			
88			10.0**VLOG10			
88		EVAL	VLOGE			
88			LOGE(100.0)			
88		EVAL	VEXPE			
88			2.718281**VLOGE			
88		EVAL	VSIN			
88			SINE(2)			
88		EVAL	VARCSIN			
88			ARCSINE(VSIN)			
88		EVAL	VCOS			
88			COSINE(2)			
88		EVAL	VARCOS			
88			ARCOSINE(VCOS)			
88		EVAL	VTAN			
88			TANGENT(2)			
88		EVAL	VARCTAN			
88			ARCTAN(VTAN)			
88		END				

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
OFD11						
TOTAL	198	608849.680	2569.947	1418.633	100.000	4920.949
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	200	498850.601	2494.253	1432.088	0.	4900.461

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
396	0	396	198	198	0

```
PROCESS           DESCRIPTION
======== ======== ========================================================
OFD11             TEST ALLOCATE & DEALLOCATE RESOURCE

COUNT ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
===== ======== ======== ======== ======== ======== ============================
  396           START    ALL      NO
  396           ALLOC    RES1     1        ALL      TEST ALLOCATE
  396                    $PRIORTY
  200           PROCESS  CONSTANT 100.0
  200                    SECONDS  RESUME
  198           DEALLOC  RES1     1                 TEST DEALLOCATE
  198           END

                 TOTAL
PROCESS          SAMPLES. SUM..... MEAN..... STD DEV... MINIMUM... MAXIMUM...
=============== ======== ========== ========== ========== ========== ==========
OFD12
          TOTAL         1       0.         0.         0.         0.         0.
   PROCESS WAIT         0       0.         0.         0.         0.         0.
  RESOURCE WAIT         0       0.         0.         0.         0.         0.

        TOTAL #  # AUTO   # CALL   # OF     # NOT    # TIMES
        SCHEDULE SCHEDULE SCHEDULE COMPLETE COMPLETE SUSPEND.
        ======== ======== ======== ======== ======== ========
               1        1        0        1        0        0

PROCESS           DESCRIPTION
======== ======== ========================================================
OFD12             TEST COMPLEX ARITHMETIC EVALUATIONS

COUNT ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
===== ======== ======== ======== ======== ======== ============================
    1           START    ALL      NO
    1           EVAL     VCOMP1
    1                    RES1[ATTR1]+(RES1[NIDLEQ]
    1                    + TDIS(1))
    1           EVAL     VCOMP2
    1                    20.5 * 2.3 - RES1[ATTR3]
    1           EVAL     VCOMP3
    1                    INTEGER(RANDOM*10) + 5
    1           EVAL     VCOMP4
    1                    EXPONENT(10.0)+(RES1[ATTR2
    1                    ]*TCON(2))
    1           END

                 TOTAL
PROCESS          SAMPLES. SUM..... MEAN..... STD DEV... MINIMUM... MAXIMUM...
```

PAGE 25

OFD2						
TOTAL	99	983.688	9.734	1.668	6.570	14.487
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
99	99	0	99	0	0

PROCESS	DESCRIPTION
OFD2	TEST LOGNORML DISTRIBUTION AND ASSIGN

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
99		START	ALL	NO		
99		ASSIGN	RES1 VNIDLEQ	NIDLEQ		
99		ASSIGN	RES1 VNBUSYQ	NBUSYQ		
99		ASSIGN	RES1 VNWAITQ	NWAITQ		
99						SET UP RESOURCE UTIL
398	CALL	ENTRY				SCHEDULE A NOWAIT PROCESS
398		CALL	OFD11	NOWAIT	2.0	
398		LOOP	CALL	4		LOOP 4 TIMES
99		PROCESS	LOGNORML SECONDS	10.0 RESUME	2.0	
99		ASSIGN	RES1 VNIDLEQ	NIDLEQ		
99		ASSIGN	RES1 VNBUSYQ	NBUSYQ		
99		ASSIGN	RES1 VNWAITQ	NWAITQ		
99		END				
99						

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
OFD3						
TOTAL	100	9898.566	98.986	76.061	0.	287.361
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
100	100	0	100	0	0

PROCESS DESCRIPTION
OFD3 TEST NORMAL DISTRIBUTION

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
100		START	ALL	NO		
100		PROCESS	NORMAL	100.0	100.0	
100			SECONDS	RESUME		
100		END				

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
OFD4						
TOTAL	98	9814.305	100.146	66.550	0.125	199.414
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
99	99	0	98	1	0

PROCESS DESCRIPTION
OFD4 TEST UNIFORM DISTRIBUTION

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
99		START	ALL	NO		
99		PROCESS	UNIFORM	100.00	100.00	
99			SECONDS	RESUME		
98		END				

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
OFD5						
TOTAL	95	945.330	9.951	6.339	0.365	32.534
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
95	95	0	95	0	0

PROCESS	DESCRIPTION
OFD5	TEST ERLANG DISTRIBUTION

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
95		START	ALL	NO		
95		EVALUATE	ERLANG	10.0	2.0	TEST
95			SECONDS	RESUME		
95		END				

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
OFD6						
TOTAL	86	8549.888	99.417	1.260	94.362	101.583
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
88	0	88	86	2	0

PROCESS	DESCRIPTION
OFD6	TEST WEIBULL DISTRIBUTION

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
88		START	ALL	NO		
88		EVALUATE	WEIBULL	100.0	100.0	TEST
88			SECONDS	RESUME		
88		END				

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
OFD7						
TOTAL	87	4369.665	50.111	14.727	27.777	93.686
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
88	0	89	87	1	0

PROCESS	DESCRIPTION

OFD7 TEST GAMMA DISTRIBUTION

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
88		START	ALL	NO		
88		EVALUATE	GAMMA	50.0	10.0	TEST
88			SECONDS	RESUME		
87		END				

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
OFD8						
TOTAL	88	0.	0.	0.	0.	0.
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
88	0	88	88	0	0

PROCESS DESCRIPTION

OFD8 TEST POISSON SCHEDULE AND EVAL DISTRIBUTIONS

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
88		START	ALL	NO		
88		EVAL	VRAN			
88			RANDOM			
88		EVAL	VBIN			
88			BINOMIAL(100.0,10.0)			
88		EVAL	VBETA			
88			BETA(10.0,5.0)			
88		EVAL	VERLANG			
88			ERLANG(10.0,5.0)			
88		EVAL	VEXP			
88			EXPONENT(10.0)			
88		EVAL	VGAMMA			
88			GAMMA(10.0,5.0)			
88		EVAL	VLOGN			
88			LOGNORML(10.0,5.0)			
88		EVAL	VNORMAL			
88			NORMAL(10.0,5.0)			
88		EVAL	VPOISSON			
88			POISSON(10.0)			
88		EVAL	VUNIFORM			

```
   88                    UNIFORM(10.0,5.0)
   88            EVAL    VWEIBULL
   88                    WEIBULL(10.0,5.0)
   88            END
```

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
OFD9						
TOTAL	88	8800.000	100.000	+2.817E-05	100.000	100.000
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
88	0	88	86	2	0

PROCESS	DESCRIPTION
OFD9	TEST START SCHEDULE AND CONSTANT ACTION

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
88		START	ALL	NO		
88		EVALUATE	CONSTANT	100.00		TEST
88			SECONDS	RESUME		
86		END				

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
OFDINIT						
TOTAL	88	0.	0.	0.	0.	0.
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
88	0	88	88	0	0

PROCESS	DESCRIPTION
OFDINIT	OFD INITIATOR FOR 6 THROUGH 10

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
88		START	ALL	NO		

```
PAGE   30
   88          ASSIGN   8                                  LOOP COUNTER AND TBL INDEX
   88                   COUNTER
  528 NEXT     ENTRY                                       CYCLE FOR ALL OFDS
  528          COMPARE  COUNTER            GT
  528                   10                 END
  440          EVAL     OFD                                INDEX INTO ALPHA TABLE
  440                   ALPHATBL(COUNTER)
  440          CALL     OFD      NOWAIT    0               INITIATE OFD INDEX COUNTER
  440          EVAL     COUNTER                            INCREMENT LOOP COUNTER
  440                   COUNTER+1
  440          BRANCH   NEXT     100
   88 END      ENTRY
   88          END

                  TOTAL
PROCESS          SAMPLES. SUM....... MEAN...... STD DEV... MINIMUM... MAXIMUM...
=============== ======== ========== ========== ========== ========== ==========
TIMECALL
          TOTAL        1    160.000    160.000      0.       160.000    160.000
   PROCESS WAIT        0      0.         0.         0.         0.         0.
  RESOURCE WAIT        0      0.         0.         0.         0.         0.

        TOTAL #  # AUTO   # CALL   # OF     # NOT    # TIMES
        SCHEDULE SCHEDULE SCHEDULE COMPLETE COMPLETE SUSPEND.
        ======== ======== ======== ======== ======== ========
              1        1        0        1        0        0

PROCESS           DESCRIPTION
======== ======== ==================================================
TIMECALL          TEST TIME CALL SCHEDULE AND EVAL ARITHMETIC/TABLE

COUNT ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
===== ======== ======== ======== ======== ======== ==========================
    1          START    ALL      NO
    1          EVAL     VADD
    1                   20.5+(-10.5)
    1          EVALUATE CONSTANT 100.0
    1                   SECONDS  RESUME
    1          EVAL     VSUB
    1                   6.5-(-3.5)
    1          EVALUATE CONSTANT VSUB
    1                   SECONDS  RESUME
    1          EVAL     VMULT
    1                   -2.5*(-4.0)
    1          EVALUATE CONSTANT VMULT
    1                   SECONDS  RESUME
    1          EVAL     VDIV
    1                   -4.0/(-0.40)
    1          EVALUATE CONSTANT VDIV
```

```
1                SECONDS  RESUME
1          EVAL  VPOWER
1                3.162277**2.0
1          EVALUATE CONSTANT VPOWER
1                SECONDS  RESUME
1          EVAL  VSQRT
1                SQRT(100.0)
1          EVALUATE CONSTANT VSQRT
1                SECONDS  RESUME
1          EVAL  VABS
1                ABSOLUTE(-10.0)
1          EVALUATE CONSTANT VABS
1                SECONDS  RESUME
1          EVAL  VCTABLE
1                TCON(-60)
1          EVAL  VDTABLE
1                TDIS(-60.0)
1          EVAL  VCTABLE
1                TCON(1060.0)
1          EVAL  VDTABLE
1                TDIS(1060.0)
1          EVAL  VCTABLE
1                TCON(160.0)
1          EVAL  VDTABLE
1                TDIS(160.0)
1          EVAL  VCTABLE
1                TCON(260.0)
1          EVAL  VDTABLE
1                TDIS(260.0)
1          EVAL  VCTABLE
1                TCON(500.0)
1          EVAL  VDTABLE
1                TDIS(500.0)
1          EVAL  VCTABLE
1                TCON(760.0)
1          EVAL  VDTABLE
1                TDIS(760.0)
1          EVAL  VCTABLE
1                TCON(860.0)
1          EVAL  VDTABLE
1                TDIS(860.0)
1          END
```

APPENDIX C

Results Verification for

TESTDBF.DBF

04/21/1987 10:19:04

TESTDBF

TEST ERROR HANDLING OF ARITHMETIC EXPRESSIONS - WITH CORRECTIONS

SIMULATION TIME = 100.00000 SECONDS

VARIABLE REPORT

NUMERIC VARIABLES...

VARIABLE	TOTAL SAMPLES.	VALUE CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
VCOMP1	2	34.000	17.000	17.000	0.	34.000
VCOMP2	2	53.150	26.575	26.575	0.	53.150
VCOMP3	2	9.000	4.500	4.500	0.	9.000
VCOMP4	2	4.135	2.067	2.067	0.	4.135
VCOMP5	2	26.000	13.000	13.000	0.	26.000
VDTABLE	2	80.000	65.000	15.000	50.000	80.000

NON-NUMERIC VARIABLES...

VARIABLE	CURRENT TYPE	CURRENT VALUE

PAGE 7

SIMULATION TIME = 100.00000 SECONDS

RESOURCE REPORT

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
RES1						
# IDLE		2.000	2.000	0.	2.000	2.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	0					
OUT OF BUSY	0					
# BUSY		0.	0.	0.	0.	0.
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	0					
OUT OF WAIT	0					
# WAITING		0.	0.	0.	0.	0.
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED TO PROCESSES: NONE

PROCESSES CURRENTLY WAITING: NONE

PAGE 8

SIMULATION TIME = 100.00000 SECONDS

PROCESS REPORT

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
OFD1						
TOTAL	1	0.	0.	0.	0.	0.
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
1	1	0	1	0	0

PROCESS	DESCRIPTION
OFD1	TEST COMPLEX ARITHMETIC EVALUATIONS

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
1		START	ALL	NO		
1		EVAL	VCOMP1			
1			RES1[ATTR1]+(RES1[NIDLEQ]			
1			+ TDIS(1)) * 12			
1		EVAL	VCOMP2			
1			20.5 * 2.3 - RES1[ATTR3]			
1		EVAL	VCOMP3			
1			INTEGER(RANDOM*10) + 5			
1		EVAL	VCOMP4			
1			EXPONENT(10.0)+(RES1[ATTR2			
1			]*TDIS(2))			
1		EVAL	VDTABLE			
1			TDIS(850.0)			
1		EVAL	VCOMP5			
1			RES1[ATTR1]+16			
1		END				

APPENDIX D

Model Description for

TESTCONV3.DBF

Before Conversion

```
$$$
```

PAGE 2

```
RTASK     $ERROR
TASKPRI   99999999
TNODE     RES1
TYPE      5
```

QUEUE DEFINITION.....

QUEUE MNEMONIC	MAXIMUM SIZE	COMMENT
QUEUE1	INFINITE	INFINITE HOLDING AREA
QUEUE2	100	LIMITED SIZE HOLDING AREA

RESOURCE DEFINITION.....

RESOURCE MNEMONIC	TOTAL # UNITS	INITIAL # UNITS	DESCRIPTION
RES1	1	1	TEST RESOURCE

ATTR. NAME	INITIAL VALUE
COST	0
NETINSTR	80
OSOVHD	0
SPEED	5000

ARCHITECTURE LEGAL PATH DEFINITION

FROM DEVICE	TO DEVICE	NEXT DEVICE	VIA LINK

ACTION DEFINITION.....

ACTION MNEMONIC	ACTION CLASS	COMMENT
DELAY	MAN	MAN-MADE DELAY
OVHD	MACHINE	OVERHEAD DELAY

PROCESS DEFINITION.....

PROCESS MNEMONIC	DESCRIPTION
INIT1	TEST CALL BLOCK

```
ENTRY    OPCODE   PARM      PARM      PARM      COMMENT
======== ======== ========  ========  ========  ========================
         START    ALL       NO                  INITIALIZE COUNTER
         ASSIGN   1
                  L                             CONTINUE FOR ALL CALLS
NEXT     ENTRY                                  TEST VALUE OF COUNTER
         COMPARE  L                   GT
                  V.COUNT1            WAIT
         CALL     PROCESS1 BLOCK      L         INITIATE PARALLEL INSTANT
         GIVEN    L
         EVAL     L        ADD                  INCREMENT COUNTER
                  L        1
         BRANCH   NEXT     100                  RETURN TO TOP
WAIT     ENTRY                                  ENTRY
         WAIT
         END

LOCAL VARIABLES OF PROCESS INIT1
================================================================================
   1 L                  2 PROCESS1  (P)
PROCESS
MNEMONIC          DESCRIPTION
======== ======== ================================================
INIT2             CREATE, SEND, ACTION DELAY FOR 6 ITEMS


ENTRY    OPCODE   PARM      PARM      PARM      COMMENT
======== ======== ========  ========  ========  ========================
         START    ALL       NO
NEXT     ENTRY                                  ENTRY
         CREATE   ITEM1                         CREATE AN ITEM
         SEND     PROCESS2 ITEM1                SEND AN ITEM TO PROCESS
         DELAY    CONSTANT 1                    DELAY FOR ACTION
         LOOP     NEXT     V.COUNT1
         END

LOCAL VARIABLES OF PROCESS INIT2
================================================================================
    1 ITEM1     (I)    2 PROCESS2  (P)    3 DELAY     (A)
PROCESS
MNEMONIC          DESCRIPTION
======== ======== ================================================
PROCESS1          PROCESS CALLED BLOCK


ENTRY    OPCODE   PARM      PARM      PARM      COMMENT
======== ======== ========  ========  ========  ========================
         START              NO
```

```
PAGE    4
         GIVEN    TIME
         DELAY    CONSTANT TIME                DELAY FOR BLOCK
         END

LOCAL VARIABLES OF PROCESS PROCESS1
=====================================================================
    1 TIME              2 DELAY      (A)
PROCESS
MNEMONIC          DESCRIPTION
======== ======== ===================================================
PROCESS2          RECEIVE AND FILE ITEM

ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== =========================
         START    ALL      NO
         RECEIVE  ITEM1
         FILE     ITEM1    LAST     QUEUE1
         CALL     PROCESS3 NOWAIT   Ø
         END

LOCAL VARIABLES OF PROCESS PROCESS2
=====================================================================
    1 ITEM1      (I)     2 QUEUE1     (Q)     3 PROCESS3   (P)
PROCESS
MNEMONIC          DESCRIPTION
======== ======== ===================================================
PROCESS3          DESTROY ITEMS -- SERIAL # NO MATCH

ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== =========================
         START    ALL      NO
         REMOVE   FIRST    ITEM     QUEUE1
         DESTROY  ITEM                        DESTROY ITEM
         END

LOCAL VARIABLES OF PROCESS PROCESS3
=====================================================================
    1 ITEM       (X)     2 QUEUE1     (Q)
PROCESS
MNEMONIC          DESCRIPTION
======== ======== ===================================================
REQ-I/O           GENERATE A PROCESS REQUEST MESSAGE AND INITIATE I/O

ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== =========================
         START    ALL      NO
```

```
PAGE    5
          GIVEN     PROCESS  PRIORITY RESP.OPT
                    MSG.LNTH TO.NODE  MSG
          CREATE    MSG                        CREATE MESSAGE DATA TO RTE
          ASSIGN    $CNODE                     INDICATE CURRENT NODE
                    MSG      CNODE
          ASSIGN    $CNODE                     INDICATE CURRENT FROM NODE
                    MSG      FNODE
          ASSIGN    PROCESS                    INDICATE REQUESTED PROCESS
                    MSG      RTASK
          ASSIGN    PRIORITY                   INDICATE RELATIVE PRIORITY
                    MSG      TASKPRI
          ASSIGN    RESP.OPT                   RESPONSE TYPE
                    MSG      RESPONSE
          CALL      ROUTER   WAIT     0
          GIVEN     MSG
          END

LOCAL VARIABLES OF PROCESS REQ-I/O
=================================================================
    1 PROCESS    (X)     2 PRIORITY          3 RESP.OPT          4 MSG.LNTH
    5 TO.NODE            6 MSG               7 ROUTER     (P)
PROCESS
MNEMONIC            DESCRIPTION
======== ======== ========================================================
ROUTER                      INTERRUPT HANDLING AND ROUTING


ENTRY     OPCODE    PARM     PARM     PARM     COMMENT
========  ========  =======  =======  =======  ========================
          START     ALL      NO
          GIVEN     MSG
          ASSIGN    MSG      CNODE             INDICATE CURRENT NODE CPU
                    CP
          COMPARE   MSG      CNODE    EQ       IS MSG AT DESTINATION?
                    MSG      TNODE    EXIT
          ASSIGN    CP       NETINSTR
                    M.OVHD
          TEST      CP       EXIT
          ALLOC     CP                         ALLOCATE NODE
          OVHD      CONSTANT M.OVHD             DELAY FOR ROUTING
          DEALLOC   CP                         DEALLOCATE NODE
          RESET     CP       -1                MAKE NODE UNAVAILABLE
EXIT      ENTRY
          END

LOCAL VARIABLES OF PROCESS ROUTER
=================================================================
    1 MSG               2 CP                3 M.OVHD            4 OVHD       (A)
```

```
PROCESS
MNEMONIC          DESCRIPTION
========= ========= ==================================================
TOHOST1


ENTRY     OPCODE    PARM      PARM      PARM      COMMENT
========= ========= ========= ========= ========= ========================
          START     ALL       NO
          CALL      REQ-I/O   WAIT      0         INITIATE I/O REQUEST
          GIVEN     TO1       PRI       $NOWAIT
                    36        RES1      ITEM2
          END

LOCAL VARIABLES OF PROCESS TOHOST1
=====================================================================
    1 REQ-I/O    (P)     2 TO1              3 PRI              4 RES1       (R)
    5 ITEM2      (I)

LOAD DEFINITION.....

LOAD
MNEMONIC          DESCRIPTION
========= ========= ==================================================
LOAD1             LOAD FOR MODEL RUN
          LOAD      NODES
          ========= ========= ========= =========
          RES1


          PROCESS             SCHEDULE
          MNEMONIC  MAX #     METHOD    MEAN      DELTA     PRIORITY
          ========= ========= ========= ========= ========= =========
          INIT1     1         START                         0
          INIT2     1         START                         0
          TOHOST1   1         START                         0

SCENARIO DEFINITION....

SCENARIO
MNEMONIC          DESCRIPTION
========= ========= ==================================================
PSCEN             SCENARIO FOR TEST RUN

PERIOD
LENGTH
=========
100
```

	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC
	1						

TRIGGER MNEMONIC	TIME TO SCHEDULE	PRIORITY	TRIGGER MNEMONIC	TIME TO SCHEDULE	PRIORITY
LOAD1	0	0			

0 ERRORS WERE DETECTED DURING MODEL INITIALIZATION

APPENDIX D

Model Description for

TESTCONV4.DBF

Before Conversion

```
$$$
```

RTASK $ERROR
TASKPRI 99999999
TNODE RES1
TYPE 5

QUEUE DEFINITION.....

QUEUE MNEMONIC	MAXIMUM SIZE	COMMENT
QUEUE1	INFINITE	INFINITE HOLDING AREA
QUEUE2	100	LIMITED SIZE HOLDING AREA

RESOURCE DEFINITION.....

RESOURCE MNEMONIC	TOTAL # UNITS	INITIAL # UNITS	DESCRIPTION
RES1	1	1	TEST RESOURCE

ATTR. NAME	INITIAL VALUE
COST	0
NETINSTR	80
OSOVHD	0
SPEED	5000

ARCHITECTURE LEGAL PATH DEFINITION

FROM DEVICE	TO DEVICE	NEXT DEVICE	VIA LINK

ACTION DEFINITION.....

ACTION MNEMONIC	ACTION CLASS	COMMENT
DELAY	MAN	MAN-MADE DELAY
OVHD	MACHINE	OVERHEAD DELAY

PROCESS DEFINITION.....

PROCESS MNEMONIC	DESCRIPTION
INIT1	TEST CALL BLOCK

```
PAGE    3

ENTRY    OPCODE   PARM      PARM      PARM      COMMENT
======== ======== ========= ========= ========= ========================
         START    ALL       NO
         ASSIGN   1                             INITIALIZE COUNTER
                  L
NEXT     ENTRY                                  CONTINUE FOR ALL CALLS
         COMPARE  L                     GT      TEST VALUE OF COUNTER
                  V.COUNT1              WAIT
         CALL     PROCESS1  BLOCK       L       INITIATE PARALLEL INSTANT
         GIVEN    L
         EVAL     L         ADD                 INCREMENT COUNTER
                  L         1
         BRANCH   NEXT      100                 RETURN TO TOP
WAIT     ENTRY                                  ENTRY
         WAIT
         END

LOCAL VARIABLES OF PROCESS INIT1
================================================================================
    1 L                2 PROCESS1   (P)
PROCESS
MNEMONIC           DESCRIPTION
======== ========= ==================================================
INIT2              CREATE, SEND, ACTION DELAY FOR 6 ITEMS


ENTRY    OPCODE   PARM      PARM      PARM      COMMENT
======== ======== ========= ========= ========= ========================
         START    ALL       NO
NEXT     ENTRY                                  ENTRY
         CREATE   ITEM1                         CREATE AN ITEM
         SEND     PROCESS2  ITEM1               SEND AN ITEM TO PROCESS
         DELAY    CONSTANT  1                   DELAY FOR ACTION
         LOOP     NEXT      V.COUNT1
         END

LOCAL VARIABLES OF PROCESS INIT2
================================================================================
    1 ITEM1     (I)     2 PROCESS2  (P)     3 DELAY     (A)
PROCESS
MNEMONIC           DESCRIPTION
======== ========= ==================================================
PROCESS1           PROCESS CALLED BLOCK


ENTRY    OPCODE   PARM      PARM      PARM      COMMENT
======== ======== ========= ========= ========= ========================
         START              NO
```

```
PAGE    4
          GIVEN     TIME
          DELAY     CONSTANT TIME               DELAY FOR BLOCK
          END

LOCAL VARIABLES OF PROCESS PROCESS1
================================================================================
    1 TIME              2 DELAY      (A)
PROCESS
MNEMONIC            DESCRIPTION
======== ======== ========================================================
PROCESS2            RECEIVE AND FILE ITEM


ENTRY     OPCODE    PARM      PARM      PARM      COMMENT
========= ========= ========= ========= ========= ==========================
          START     ALL       NO
          RECEIVE   ITEM1
          FILE      ITEM1     LAST      QUEUE1
          CALL      PROCESS3  NOWAIT    0
          END

LOCAL VARIABLES OF PROCESS PROCESS2
================================================================================
    1 ITEM1      (I)     2 QUEUE1     (Q)     3 PROCESS3   (P)
PROCESS
MNEMONIC            DESCRIPTION
======== ======== ========================================================
PROCESS3            DESTROY ITEMS -- SERIAL # NO MATCH


ENTRY     OPCODE    PARM      PARM      PARM      COMMENT
========= ========= ========= ========= ========= ==========================
          START     ALL       NO
          REMOVE    FIRST     ITEM      QUEUE1
          DESTROY   ITEM                          DESTROY ITEM
          END

LOCAL VARIABLES OF PROCESS PROCESS3
================================================================================
    1 ITEM       (X)     2 QUEUE1     (Q)
PROCESS
MNEMONIC            DESCRIPTION
======== ======== ========================================================
REQ-I/O             GENERATE A PROCESS REQUEST MESSAGE AND INITIATE I/O


ENTRY     OPCODE    PARM      PARM      PARM      COMMENT
========= ========= ========= ========= ========= ==========================
          START     ALL       NO
```

```
PAGE    5
        GIVEN    PROCESS  PRIORITY RESP.OPT
                 MSG.LNTH TO.NODE  MSG
        CREATE   MSG                        CREATE MESSAGE DATA TO RTE
        ASSIGN   $CNODE                     INDICATE CURRENT NODE
                 MSG      CNODE
        ASSIGN   $CNODE                     INDICATE CURRENT FROM NODE
                 MSG      FNODE
        ASSIGN   PROCESS                    INDICATE REQUESTED PROCESS
                 MSG      RTASK
        ASSIGN   PRIORITY                   INDICATE RELATIVE PRIORITY
                 MSG      TASKPRI
        ASSIGN   RESP.OPT                   RESPONSE TYPE
                 MSG      RESPONSE
        CALL     ROUTER   WAIT     0
        GIVEN    MSG
        END

LOCAL VARIABLES OF PROCESS REQ-I/O
=====================================================================
    1 PROCESS    (X)     2 PRIORITY          3 RESP.OPT          4 MSG.LNTH
    5 TO.NODE            6 MSG               7 ROUTER     (P)
PROCESS
MNEMONIC           DESCRIPTION
======== ======== ===================================================
ROUTER                      INTERRUPT HANDLING AND ROUTING


ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ========================
         START    ALL      NO
         GIVEN    MSG
         ASSIGN   MSG      CNODE             INDICATE CURRENT NODE CPU
                  CP
         COMPARE  MSG      CNODE    EQ       IS MSG AT DESTINATION?
                  MSG      TNODE    EXIT
         ASSIGN   CP       NETINSTR
                  M.OVHD
         TEST     CP       EXIT
         ALLOC    CP       1        ALL      ALLOCATE NODE
                  $PRIORTY
         OVHD     CONSTANT M.OVHD            DELAY FOR ROUTING
         DEALLOC  CP       1                 DEALLOCATE NODE
         RESET    CP       -1                MAKE NODE UNAVAILABLE
EXIT     ENTRY
         END

LOCAL VARIABLES OF PROCESS ROUTER
=====================================================================
    1 MSG                2 CP                3 M.OVHD            4 OVHD       (A)
```

```
PAGE    6

PROCESS
MNEMONIC          DESCRIPTION
======== ======== ==================================================
TOHOST1


ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ========================
         START    ALL      NO
         CALL     REQ-I/O  WAIT     0        INITIATE I/O REQUEST
         GIVEN    TO1      PRI      $NOWAIT
                  36       RES1     ITEM2
         END

LOCAL VARIABLES OF PROCESS TOHOST1
==================================================================
    1 REQ-I/O   (P)    2 TO1              3 PRI              4 RES1      (R)
    5 ITEM2     (I)

LOAD DEFINITION.....

LOAD
MNEMONIC          DESCRIPTION
======== ======== ==================================================
LOAD1             LOAD FOR MODEL RUN
         LOAD     NODES
         ======== ======== ======== ========
         RES1


         PROCESS            SCHEDULE
         MNEMONIC MAX #     METHOD   MEAN     DELTA    PRIORITY
         ======== ======== ======== ======== ======== ========
         INIT1    1         START                      0
         INIT2    1         START                      0
         TOHOST1  1         START                      0

SCENARIO DEFINITION....

SCENARIO
MNEMONIC          DESCRIPTION
======== ======== ==================================================
PSCEN             SCENARIO FOR TEST RUN

PERIOD
LENGTH
========
100
```

PAGE 7

	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC
	1						

TRIGGER MNEMONIC	TIME TO SCHEDULE	SCHEDULE PRIORITY	TRIGGER MNEMONIC	TIME TO SCHEDULE	SCHEDULE PRIORITY
LOAD1	0	0			

0 ERRORS WERE DETECTED DURING MODEL INITIALIZATION

APPENDIX D

Model Description for

TESTCONV3.DBF and TESTCONV4.DBF

After Conversion

```
$$$
```

```
PAGE    2
ITEM2                          SECOND ITEM ON THE LIST WITH LOTS OF ATTRIBUTES
          ATTR.      INITIAL
          NAME       VALUE
          ========== ========
          CNODE      $CNODE
          FNODE      $CNODE
          LENGTH     99999999
          PTASK      $ERROR
          RESPONSE   $WAIT
          RTASK      $ERROR
          TASKPRI    99999999
          TNODE      RES1
          TYPE       6


QUEUE DEFINITION.....

QUEUE     MAXIMUM
MNEMONIC    SIZE    COMMENT
========= ========= ================================================
QUEUE1    INFINITE  INFINITE HOLDING AREA
QUEUE2    100       LIMITED SIZE HOLDING AREA

RESOURCE DEFINITION.....

RESOURCE  TOTAL     INITIAL
MNEMONIC  # UNITS   # UNITS   DESCRIPTION
========= ========= ========= ========================================
RES1      1         1         TEST RESOURCE
          ATTR.     INITIAL
          NAME      VALUE
          ========= ========
          COST      0
          NETINSTR  80
          OSOVHD    0
          SPEED     6000

ARCHITECTURE LEGAL PATH DEFINITION

FROM      TO        NEXT      VIA
DEVICE    DEVICE    DEVICE    LINK
========  ========  ========  ========

ACTION DEFINITION.....

ACTION
MNEMONIC            COMMENT
========= ========= ========================================================
DELAY               MAN-MADE DELAY
```

PROCESS DEFINITION.....

```
PROCESS
MNEMONIC          DESCRIPTION
========= ======== ==================================================
INIT1             TEST CALL BLOCK

ENTRY     OPCODE   PARM     PARM     PARM     COMMENT
========= ======== ======== ======== ======== ========================
          START    ALL      NO
          ASSIGN   1                          INITIALIZE COUNTER
                   L
                                               CONTINUE FOR ALL CALLS
NEXT      ENTRY
          COMPARE  L                   GT     TEST VALUE OF COUNTER
                   V_COUNT1            WAIT
          CALL     PROCESS1 BLOCK      L      INITIATE PARALLEL INSTANT
          GIVEN    L
          EVAL     L                          INCREMENT COUNTER
                   (L       ) + (1       )
          BRANCH   NEXT     100               RETURN TO TOP
WAIT      ENTRY                               ENTRY
          WAIT
          END

LOCAL VARIABLES OF PROCESS INIT1
================================================================================
    1 L                 2 PROCESS1  (P)

GLOBAL VARIABLES OF PROCESS INIT1
================================================================================
    1 V_COUNT1
PROCESS
MNEMONIC          DESCRIPTION
========= ======== ==================================================
INIT2             CREATE, SEND, ACTION DELAY FOR 8 ITEMS

ENTRY     OPCODE   PARM     PARM     PARM     COMMENT
========= ======== ======== ======== ======== ========================
          START    ALL      NO
NEXT      ENTRY                               ENTRY
          CREATE   ITEM1                      CREATE AN ITEM
          SEND     PROCESS2 ITEM1             SEND AN ITEM TO PROCESS
          DELAY    CONSTANT 1                 DELAY FOR ACTION
                   SECONDS  RESUME
          LOOP     NEXT     V_COUNT1
```

```
        END

LOCAL VARIABLES OF PROCESS INIT2
================================================================================
    1 ITEM1      (I)     2 PROCESS2  (P)     3 DELAY      (A)

GLOBAL VARIABLES OF PROCESS INIT2
================================================================================
    1 V_COUNT1
PROCESS
MNEMONIC            DESCRIPTION
======== ======== ========================================================
PROCESS1            PROCESS CALLED BLOCK


ENTRY    OPCODE    PARM      PARM      PARM      COMMENT
======== ======== ========  ========  ========  =========================
         START               NO
         GIVEN     TIME
         DELAY     CONSTANT  TIME                DELAY FOR BLOCK
                   SECONDS   RESUME
         END

LOCAL VARIABLES OF PROCESS PROCESS1
================================================================================
    1 TIME               2 DELAY      (A)
PROCESS
MNEMONIC            DESCRIPTION
======== ======== ========================================================
PROCESS2            RECEIVE AND FILE ITEM


ENTRY    OPCODE    PARM      PARM      PARM      COMMENT
======== ======== ========  ========  ========  =========================
         START     ALL       NO
         RECEIVE   ITEM1
         FILE      ITEM1     LAST      QUEUE1
         CALL      PROCESS3  NOWAIT    Ø
         END

LOCAL VARIABLES OF PROCESS PROCESS2
================================================================================
    1 ITEM1      (I)     2 QUEUE1     (Q)     3 PROCESS3  (P)
PROCESS
MNEMONIC            DESCRIPTION
======== ======== ========================================================
PROCESS3            DESTROY ITEMS -- SERIAL # NO MATCH
```

```
PAGE    6
ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ========================
         START    ALL      NO
         REMOVE   FIRST    ITEM     QUEUE1
         DESTROY  ITEM                        DESTROY ITEM
         END

LOCAL VARIABLES OF PROCESS PROCESS3
================================================================================
    1 ITEM       (X)     2 QUEUE1     (Q)
PROCESS
MNEMONIC          DESCRIPTION
======== ======== ================================================
REQ_I_O           GENERATE A PROCESS REQUEST MESSAGE AND INITIATE I/O

ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ========================
         START    ALL      NO
         GIVEN    PROCESS  PRIORITY RESP_OPT
                  MSG_LNTH TO_NODE  MSG
         CREATE   MSG                         CREATE MESSAGE DATA TO RTE
         ASSIGN   $CNODE                      INDICATE CURRENT NODE
                  MSG      CNODE
         ASSIGN   $CNODE                      INDICATE CURRENT FROM NODE
                  MSG      FNODE
         ASSIGN   PROCESS                     INDICATE REQUESTED PROCESS
                  MSG      RTASK
         ASSIGN   PRIORITY                    INDICATE RELATIVE PRIORITY
                  MSG      TASKPRI
         ASSIGN   RESP_OPT                    RESPONSE TYPE
                  MSG      RESPONSE
         CALL     ROUTER   WAIT     0
         GIVEN    MSG
         END

LOCAL VARIABLES OF PROCESS REQ_I_O
================================================================================
    1 PROCESS    (X)     2 PRIORITY          3 RESP_OPT          4 MSG_LNTH
    5 TO_NODE            6 MSG               7 ROUTER     (P)
PROCESS
MNEMONIC          DESCRIPTION
======== ======== ================================================
ROUTER                INTERRUPT HANDLING AND ROUTING

ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ========================
         START    ALL      NO
```

```
PAGE    6
          GIVEN     MSG
          ASSIGN    MSG         CNODE                 INDICATE CURRENT NODE CPU
                    CP
          COMPARE   MSG         CNODE     EQ          IS MSG AT DESTINATION?
                    MSG         TNODE     EXIT
          ASSIGN    CP          NETINSTR
                    M_OVHD
          TEST      CP          EXIT
          ALLOC     CP                                DELAY FOR ROUTING
                    CONSTANT
          DEALLOC   CP                                DEALLOCATE NODE
          RESET     CP          -1                    MAKE NODE UNAVAILABLE
EXIT      ENTRY
          END

LOCAL VARIABLES OF PROCESS ROUTER
================================================================================
    1 MSG               2 CP                3 M_OVHD            4
    5 CONSTANT  (X)
PROCESS
MNEMONIC            DESCRIPTION
======== ======== ==================================================
TOHOST1


ENTRY     OPCODE    PARM      PARM      PARM      COMMENT
========  ========  ========  ========  ========  ========================
          START     ALL       NO
          CALL      REQ_I_O   WAIT      0         INITIATE I/O REQUEST
          GIVEN     TO1       PRI       $NOWAIT
                    36        RES1      ITEM2
          END

LOCAL VARIABLES OF PROCESS TOHOST1
================================================================================
    1 REQ_I_O   (P)     2 TO1               3 PRI               4 RES1      (R)
    5 ITEM2     (I)

LOAD DEFINITION.....

LOAD
MNEMONIC            DESCRIPTION
======== ======== ==========================================================
LOAD1               LOAD FOR MODEL RUN
          LOAD      NODES
          ======== ======== ======== ========
          RES1
```

```
PAGE    7
        PROCESS                          SCHEDULE
        MNEMONIC  MAX #    METHOD    MEAN      DELTA     UNITS     PRIORITY
        ========  ========  ========  ========  ========  ========  ========
                                                          SECONDS   0
        INIT1     1         START                         SECONDS   0
        INIT2     1         START                         SECONDS   0
        TOHOST1   1         START

SCENARIO DEFINITION....

SCENARIO
MNEMONIC            DESCRIPTION
========  ========  ============================================================
PSCEN               SCENARIO FOR TEST RUN

PERIOD    PERIOD    OUTPUT
LENGTH    UNITS     UNITS
========  ========  ========
100       SECONDS   SECONDS

          PERIOD    PERIOD    PERIOD    PERIOD    PERIOD    PERIOD    PERIOD
          MNEMONIC  MNEMONIC  MNEMONIC  MNEMONIC  MNEMONIC  MNEMONIC  MNEMONIC
========  ========  ========  ========  ========  ========  ========  ========
          1

TRIGGER   TIME  TO  SCHEDULE  SCHEDULE  TRIGGER   TIME  TO  SCHEDULE  SCHEDULE
MNEMONIC  SCHEDULE  UNITS     PRIORITY  MNEMONIC  SCHEDULE  UNITS     PRIORITY
========  ========  ========  ========  ========  ========  ========  ========
LOAD1     0         SECONDS   0

 ####    0 ERRORS WERE DETECTED DURING MODEL INITIALIZATION
```

APPENDIX E

Model Description and
Results Verification for

TESTDB2.DBF

```
$$$
```

```
PAGE    2
======== ================= ==========================================
MSG                        ITEM MESSAGE
         ATTR.     INITIAL
         NAME      VALUE
         ======== ========
         LENGTH    0


QUEUE DEFINITION.....

QUEUE    MAXIMUM
MNEMONIC   SIZE   COMMENT
======== ======== ==================================================

RESOURCE DEFINITION.....

RESOURCE TOTAL     INITIAL
MNEMONIC # UNITS   # UNITS  DESCRIPTION
======== ======== ======== ==========================================
CPU1     1         1        RESOURCE CPU1
         ATTR.     INITIAL
         NAME      VALUE
         ======== ========
         SPEED     0

CPU2     1         1        RESOURCE CPU2
         ATTR.     INITIAL
         NAME      VALUE
         ======== ========
         SPEED     0

ARCHITECTURE LEGAL PATH DEFINITION

FROM      TO        NEXT      VIA
DEVICE    DEVICE    DEVICE    LINK
========  ========  ========  ========

ACTION DEFINITION.....

ACTION
MNEMONIC           COMMENT
======== ======== ==================================================
WORK               RECORD PROCESSING DELAY TIME

PROCESS DEFINITION.....

PROCESS
MNEMONIC           DESCRIPTION
======== ======== ==================================================
```

```
PAGE    3
INIT1                INITIALIZE SYSTEM

ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ========================
         START    ALL      NO
         READ     TESTIN   EOFLABL           READ CASE NUMBER
                  CASE
         READ     TESTIN   EOFLABL           READ CPU TO BE USED
                  CPU
         READ     TESTIN   EOFLABL           READ SPEED OF CPU
                  CPU      SPEED
         CREATE   MSG                        INITIATE MESSAGE
         READ     TESTIN   EOFLABL           READ MESSAGE LENGTH
                  MSG      LENGTH
         COMPARE  CASE              EQ       BRANCH BASED ON CASE
                  1                 CASE1
         COMPARE  CASE              EQ
                  2                 CASE2
         BRANCH   END      100
CASE1    ENTRY
         CALL     PROC1    NOWAIT   0        CALL PROCESS 1
         GIVEN    CPU      MSG
         BRANCH   END      100
CASE2    ENTRY
         CALL     PROC2    NOWAIT   0        CALL PROCESS 2
         GIVEN    CPU      MSG
         BRANCH   END      100
END      ENTRY
EOFLABL  ENTRY
         END

LOCAL VARIABLES OF PROCESS INIT1
================================================================
    1 CASE              2 CPU               3 MSG       (I)     4 PROC1     (P)
    5 PROC2     (P)
PROCESS
MNEMONIC             DESCRIPTION
======== ======== ========================================================
PROC1                PROCESS CASE1

ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ========================
         START    ALL      NO
         GIVEN    L_CPU    L_MSG
         WRITE    TESTOUT                    WRITE ALPHA
                  $TEST1
         WRITE    TESTOUT                    WRITE PROCESS NAME
```

```
                PROC1
          WRITE TESTOUT                          WRITE CPU NAME
                L_CPU
          WRITE TESTOUT                          WRITE MESSAGE NAME
                L_MSG
          READ  TESTIN   EOFLABL                 READ OVERHEAD VALUE
                V_OVHD
          EVAL  DELAY                            CALCULATE DELAY TIME
                V_OVHD + L_MSG[LENGTH] *
                L_CPU[SPEED]
          WRITE TESTOUT                          WRITE DELAY TIME
                DELAY
          ALLOC L_CPU    1        ALL            ALLOCATE CPU
                $PRIORTY
          WORK  CONSTANT DELAY                   DELAY FOR PROCESSING
                SECONDS  RESUME
          DEALLOC L_CPU  1                       RELEASE CPU
EOFLABL   ENTRY
          END

LOCAL VARIABLES OF PROCESS PROC1
================================================================================
    1 L_CPU          2 L_MSG          3 PROC1      (P)    4 DELAY
    5 WORK      (A)

GLOBAL VARIABLES OF PROCESS PROC1
================================================================================
    1 V_OVHD
PROCESS
MNEMONIC          DESCRIPTION
======== ======== ================================================
PROC2             PROCESS CASE2

ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
======== ======== ======== ======== ======== ========================
         START    ALL      NO
         GIVEN    L_CPU    L_MSG
         WRITE    TESTOUT                    WRITE ALPHA
                  $TEST2
         WRITE    TESTOUT                    WRITE PROCESS NAME
                  PROC2
         WRITE    TESTOUT                    WRITE CPU NAME
                  L_CPU
         WRITE    TESTOUT                    WRITE MESSAGE NAME
                  L_MSG
         READ     TESTIN   EOFLABL           READ OVERHEAD VALUE
                  V_OVHD
         EVAL     DELAY                      CALCULATE DELAY TIME
```

```
                V_OVHD * L_MSG[LENGTH] *
                L_CPU[SPEED]
          WRITE TESTOUT                          WRITE DELAY TIME
                DELAY
          ALLOC L_CPU    1        ALL            ALLOCATE CPU
                $PRIORTY
          WORK  CONSTANT DELAY                   DELAY FOR PROCESSING
                SECONDS  RESUME
          DEALLOC L_CPU  1                       RELEASE CPU
EOFLABL   ENTRY
          END
```

LOCAL VARIABLES OF PROCESS PROC2

```
    1 L_CPU          2 L_MSG          3 PROC2     (P)     4 DELAY
    5 WORK      (A)
```

GLOBAL VARIABLES OF PROCESS PROC2

```
    1 V_OVHD
```

LOAD DEFINITION.....

SCENARIO DEFINITION....

SCENARIO MNEMONIC	DESCRIPTION
TEST1	

PERIOD LENGTH	PERIOD UNITS	OUTPUT UNITS
100	SECONDS	SECONDS

	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC	PERIOD MNEMONIC
	1						

TRIGGER MNEMONIC	TIME TO SCHEDULE	SCHEDULE UNITS	SCHEDULE PRIORITY	TRIGGER MNEMONIC	TIME TO SCHEDULE	SCHEDULE UNITS	SCHEDULE PRIORITY
INIT1	0	SECONDS	0				

0 ERRORS WERE DETECTED DURING MODEL INITIALIZATION

04/22/1987 18:10:14

TESTDB2

CASE 1 DATA

PAGE 7

SIMULATION TIME = 100.00000 SECONDS

VARIABLE REPORT

NUMERIC VARIABLES...

VARIABLE	TOTAL SAMPLES	VALUE				
		CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
V_OVHD	2	2.000	1.000	1.000	0.	2.000

NON-NUMERIC VARIABLES...

VARIABLE	CURRENT TYPE	CURRENT VALUE

PAGE 8

SIMULATION TIME = 100.00000 SECONDS

ITEM REPORT

ITEM NAME	NUMBER CREATED	NUMBER DESTR'D	TIME IN SYSTEM MINIMUM...	MAXIMUM...	AVERAGE...	STD DEV...
MSG	1	0	0.	0.	0.	0.

SIMULATION TIME = 100.00000 SECONDS

RESOURCE REPORT

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
CPU1						
# IDLE		1.000	0.480	0.500	0.	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	1					
OUT OF BUSY	1					
# BUSY		0.	0.520	0.500	0.	1.000
BUSY TIME			52.000	0.	52.000	52.000
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	1					
OUT OF WAIT	1					
# WAITING		0.	0.	0.	0.	0.
WAIT TIME			0.	0.	0.	0.

CURRENTLY ALLOCATED TO PROCESSES: NONE

PROCESSES CURRENTLY WAITING: NONE

RESOURCE	TOTAL NUMBER	CURRENT...	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
CPU2						
# IDLE		1.000	1.000	0.	1.000	1.000
REQUEST TIME			0.	0.	0.	0.
HOLD TIME	0		0.	0.	0.	0.
INTO BUSY	0					
OUT OF BUSY	0					
# BUSY		0.	0.	0.	0.	0.
BUSY TIME			0.	0.	0.	0.
# INACTIVE		0.	0.	0.	0.	0.
INTO WAIT	0					
OUT OF WAIT	0					
# WAITING		0.	0.	0.	0.	0.

WAIT TIME	0.	0.	0.	0.

CURRENTLY ALLOCATED
TO PROCESSES: NONE

PROCESSES CURRENTLY
WAITING: NONE

PAGE 11

SIMULATION TIME = 100.00000 SECONDS

ACTION REPORT

ACTION	TOTAL SAMPLES	MEAN.....	STD DEV...	MINIMUM..	MAXIMUM...	% TIME OF TOTAL.
WORK						
USEFUL TIME	1	52.000	0.	52.000	52.000	52.000
DELAY TIME	1	0.	0.	0.	0.	
WASTED TIME	0	0.	0.	0.	0.	

SIMULATION TIME = 100.00000 SECONDS

PROCESS REPORT

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
INIT1						
TOTAL	1	0.	0.	0.	0.	0.
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
1	1	0	1	0	0

ITEM	CREATED	RECEIVED	SENT	DESTR'D
MSG	1	0	0	0

ITEM	PROCESS HOLDING TIME # SMPLS	MEAN.....	MINIMUM..	MAXIMUM...	STD DEV...
MSG	1	0.	0.	0.	0.

PROCESS	DESCRIPTION
INIT1	INITIALIZE SYSTEM

COUNT	ENTRY	OPCODE	PARM	PARM	PARM	COMMENT
1		START	ALL	NO		
1		READ	TESTIN	EOFLABL		READ CASE NUMBER
1			CASE			
1		READ	TESTIN	EOFLABL		READ CPU TO BE USED
1			CPU			
1		READ	TESTIN	EOFLABL		READ SPEED OF CPU
1			CPU	SPEED		
1		CREATE	MSG			INITIATE MESSAGE
1		READ	TESTIN	EOFLABL		READ MESSAGE LENGTH
1			MSG	LENGTH		
1		COMPARE	CASE		EQ	BRANCH BASED ON CASE
1			1		CASE1	
0		COMPARE	CASE		EQ	
0			2		CASE2	
0		BRANCH	END	100		
1	CASE1	ENTRY				

```
PAGE   13
     1            CALL      PROC1     NOWAIT   0        CALL PROCESS 1
     1            GIVEN     CPU       MSG
     1            BRANCH    END       100
     0 CASE2      ENTRY
     0            CALL      PROC2     NOWAIT   0        CALL PROCESS 2
     0            GIVEN     CPU       MSG
     0            BRANCH    END       100
     1 END        ENTRY
     1 EOFLABL    ENTRY
     1            END

                    TOTAL
PROCESS             SAMPLES. SUM..... MEAN..... STD DEV... MINIMUM... MAXIMUM...
=================== ======== ========= ========= ========= ========= =========
PROC1
            TOTAL          1    52.000    52.000        0.     52.000    52.000
     PROCESS WAIT          0        0.        0.        0.        0.        0.
   RESOURCE WAIT           1        0.        0.        0.        0.        0.

          TOTAL #  # AUTO    # CALL    # OF      # NOT     # TIMES
          SCHEDULE SCHEDULE  SCHEDULE  COMPLETE  COMPLETE  SUSPEND.
          ======== ========  ========  ========  ========  ========
                 1        0         1         1         0         0

           ITEM     CREATED  RECEIVED SENT     DESTR'D
           ======== ======== ======== ======== ========
           MSG             0        0        0        0

                     PROCESS  HOLDING  TIME
           ITEM      # SMPLS  MEAN..... MINIMUM..  MAXIMUM... STD DEV...
           ======== ======== ========= ========== ========== =========
           MSG              0        0.         0.         0.        0.

PROCESS             DESCRIPTION
======== ========  ============================================================
PROC1               PROCESS CASE1

COUNT ENTRY    OPCODE   PARM     PARM     PARM     COMMENT
===== ======== ======== ======== ======== ======== ============================
    1          START    ALL      NO
    1          GIVEN    L_CPU    L_MSG
    1          WRITE    TESTOUT                    WRITE ALPHA
    1                   $TEST1
    1          WRITE    TESTOUT                    WRITE PROCESS NAME
    1                   PROC1
    1          WRITE    TESTOUT                    WRITE CPU NAME
    1                   L_CPU
    1          WRITE    TESTOUT                    WRITE MESSAGE NAME
    1                   L_MSG
```

```
PAGE   14
     1            READ      TESTIN   EOFLABL            READ OVERHEAD VALUE
     1                      V_OVHD
     1            EVAL      DELAY                       CALCULATE DELAY TIME
     1                      V_OVHD * L_MSG[LENGTH] *
     1                      L_CPU[SPEED]
     1            WRITE     TESTOUT                     WRITE DELAY TIME
     1                      DELAY
     1            ALLOC     L_CPU    1         ALL      ALLOCATE CPU
     1                      $PRIORTY
     1            WORK      CONSTANT DELAY               DELAY FOR PROCESSING
     1                      SECONDS  RESUME
     1            DEALLOC   L_CPU    1                  RELEASE CPU
     1 EOFLABL    ENTRY
     1            END
```

PROCESS	TOTAL SAMPLES.	SUM.....	MEAN.....	STD DEV...	MINIMUM...	MAXIMUM...
PROC2						
TOTAL	0	0.	0.	0.	0.	0.
PROCESS WAIT	0	0.	0.	0.	0.	0.
RESOURCE WAIT	0	0.	0.	0.	0.	0.

TOTAL # SCHEDULE	# AUTO SCHEDULE	# CALL SCHEDULE	# OF COMPLETE	# NOT COMPLETE	# TIMES SUSPEND.
0	0	0	0	0	0

PROCESS	DESCRIPTION
PROC2	PROCESS CASE2

```
COUNT ENTRY     OPCODE    PARM     PARM     PARM     COMMENT
    0           START     ALL      NO
    0           GIVEN     L_CPU    L_MSG
    0           WRITE     TESTOUT                    WRITE ALPHA
    0                     $TEST2
    0           WRITE     TESTOUT                    WRITE PROCESS NAME
    0                     PROC2
    0           WRITE     TESTOUT                    WRITE CPU NAME
    0                     L_CPU
    0           WRITE     TESTOUT                    WRITE MESSAGE NAME
    0                     L_MSG
    0           READ      TESTIN   EOFLABL           READ OVERHEAD VALUE
    0                     V_OVHD
    0           EVAL      DELAY                      CALCULATE DELAY TIME
    0                     V_OVHD * L_MSG[LENGTH] *
    0                     L_CPU[SPEED]
```

```
PAGE   15
     0          WRITE     TESTOUT                          WRITE DELAY TIME
     0                    DELAY
     0          ALLOC     L_CPU     1          ALL         ALLOCATE CPU
     0                    $PRIORTY
     0          WORK      CONSTANT DELAY                   DELAY FOR PROCESSING
     0                    SECONDS  RESUME
     0          DEALLOC   L_CPU     1                      RELEASE CPU
     0 EOFLABL  ENTRY
     0          END
```

END

DATE

FILMED

MARCH

1988

DTIC